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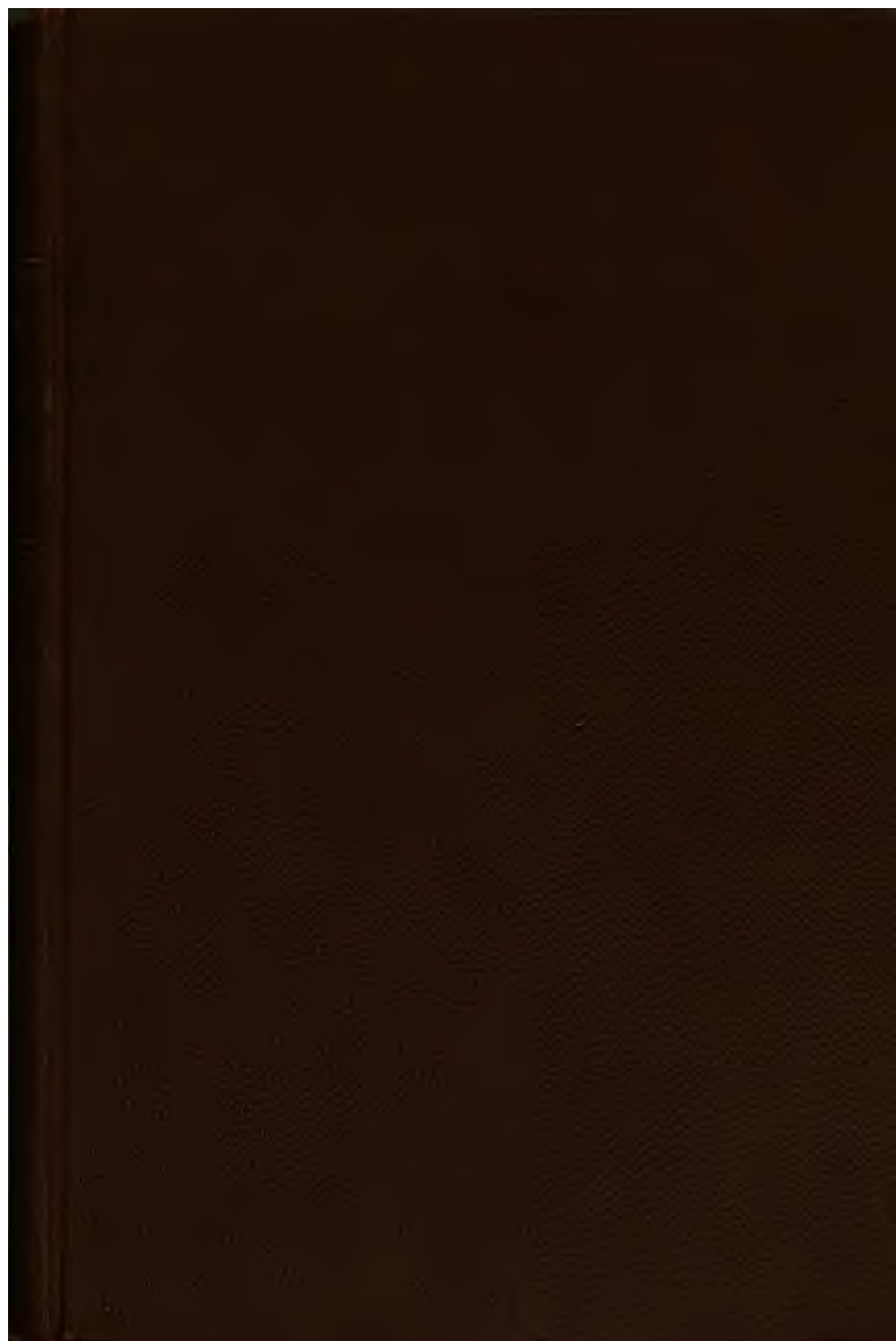
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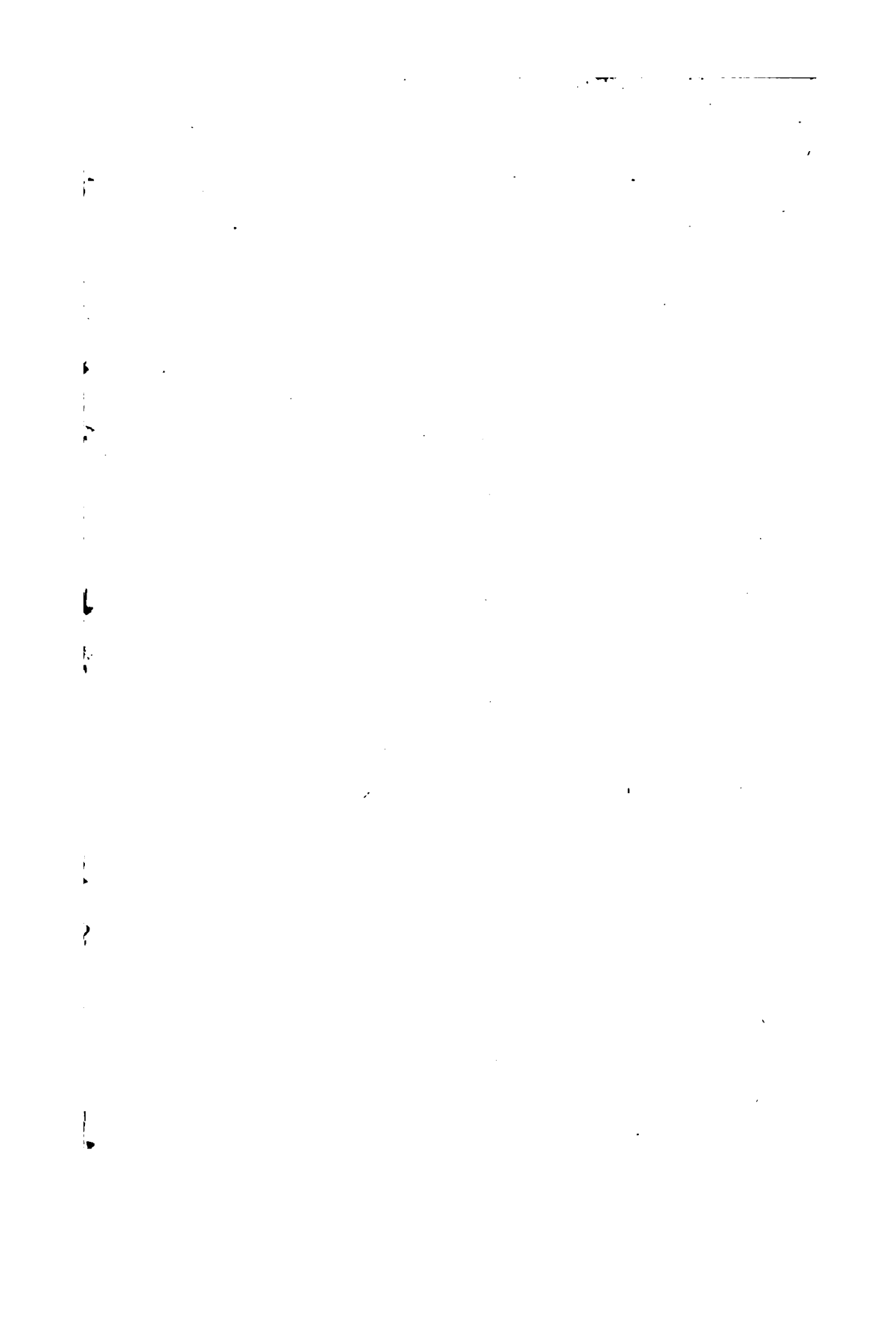
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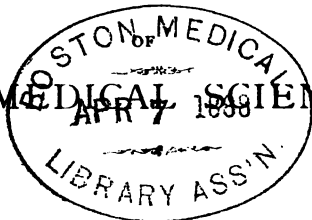
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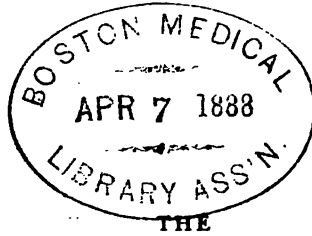
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JULY, 1887.

ORIGINAL COMMUNICATIONS.

ACUTE PRIMARY PERITONITIS.*

BY ARTHUR FOXWELL, B.A., M.B., CANTAB.

ACUTE Peritonitis as it has occurred in the medical wards of the General Hospital may be divided into four classes.

1. Primary.
2. That due to morbid states of the blood.
3. That set up by extension from other organs.
4. Internal Traumatism:

To-night I wish chiefly to speak of Primary Peritonitis. From a pathological point of view it is by far the most interesting, as some lay doubt on its very existence. With your permission I will quote the opinions of one or two authorities in this particular; I shall then briefly relate one or two cases which are, I think, instances of this affection, and shall strive to show that the doubt and confusion has arisen from the idea that such peritonitis must be a purely local and isolated disease and *not*, as I believe it to be, merely the local expression of a constitutional malady.

Roberts, 6th Ed., p. 580, 1885, has six classes, the fifth he calls idiopathic. "Under this head are included those cases of peritonitis which cannot be traced to either class of causes above mentioned, but which are attributed to cold, over eating or drinking, and other injurious influences. Many doubt the

* A paper read before the Midland Medical Society.

existence of this variety, but exceptional cases come under observation which certainly seem fairly to belong to this class."

Aitken, 7th Ed., Vol ii., p. 810, 1880.—"Its existence as a primary affection, like pleurisy, is generally ignored. But there is a class of cases which may be described as forms of idiopathic peritonitis in which effusion suddenly occurs into the peritoneum analogous to cases of latent pleurisy. These cases mostly arise from cold. They are generally sub-acute and often latent; in this respect bearing a great resemblance to the latent forms of pleurisy not uncommon in children and young persons."

Wardell, in Reynolds' System, Vol. iii., 1871, p. 207.—"If peritonitis, like pneumonia and certain other diseases which formerly had always accorded to them an essentiality, is not to be deemed an essential complaint, it certainly, from its importance, demands a distinct place in a comprehensive work like that of 'The System of Medicine.'" "The causes of peritonitis are often traceable to wet and cold, damp feet, damp beds, chill winds, sudden alterations of temperature, as when, after being in a heated atmosphere, the body is rapidly cooled, or to excessive fatigue—in fact to such general influences as are concerned in the production of inflammation in other viscera."

Alonzo Clark, in Pepper's System of Medicine, 1885, quotes Habershon's classical statement: "I cannot find a single case thoroughly detailed where the disease could be correctly regarded as existing solely in the peritoneal serous membrane," and then adds: It can however hardly be doubted that a much larger proportion of the cases are primary and idiopathic than either Louis or Habershon found reason to admit."

Sir Thos. Watson writes in much the same agnostic state of mind: "much," he says, "of what I so lately said of acute inflammation of the pericardium may be said as pertinently of acute inflammation of the peritoneum. The membrane, when healthy, does not manifest any great or spontaneous readiness to take on inflammation. Peritonitis is often ascribed to some known exposure to cold, and especially to cold combined with moisture. But there is reason to believe that in most if not in

all such cases some predisposing influence has been at work, some predisposition established, some previous unhealthy state of the membrane itself, or of the circulating blood."

Hilton Fagge strongly wishes to disbelieve in the existence of this form, but his sense of fairness baffles him. Here are his words:—"In some the cause is obvious; in others it may be utterly obscure, the patient having been supposed to be in perfect health until he is attacked by acute inflammation of the whole abdomen. Acute peritonitis is not in all cases traceable to an antecedent local disease. Sir Thomas Watson, in common with many of the older writers, gave exposure to cold as one of its causes; but general pathology lends no support to such an opinion." But though Hilton Fagge is so strongly convinced of the non-existence of this affection he is constrained to set down the opposite opinion of Dr. Fordyce Barker. To continue in his words:—"Dr. Fordyce Barker, indeed, speaks very confidently of having seen puerperal peritonitis caused by exposure to cold; and *at least shows clearly* that in some cases no trace of suppuration or inflammation can be detected in the uterus or any of the neighbouring organs." Again, "In twenty years at Guy's there are recorded in the post-mortem reports only two cases of death from acute peritonitis in which the disease could not be attributed to any such causes as those of which I have been speaking." Here is an admission of two deaths, and primary peritonitis is by no means always fatal as I shall presently point out. But Dr. Fagge goes further still, for, "In 1874, at a Wandsworth school several children were attacked with acute peritonitis *at the same time*; Dr. Anstie, who investigated this outbreak, came to the conclusion that it was caused by exposure to the influence of sewer gas. Dr. Shirley Murphy tells me he has lately met with a similar case. A woman, aged 36, died on her way to Homerton Fever Hospital, to which she was being mistakenly carried. At the autopsy, acute peritonitis was found to be the cause of death; no local starting point could anywhere be discovered; the uterus, intestines, and all other viscera were quite healthy. On enquiry

it was elicited that the drain pipe in her house had been blocked for two or three weeks, that in consequence the yard was covered with sewage, and some even lay on the passage leading to her room." These were evidently cases of primary septic peritonitis where the inhaled poison passed harmlessly through lungs and pleuræ to spend its strength on the peritoneum alone.

Thus with regard to the existence of acute primary peritonitis, there are some agnostics and some who remain faithful to the old creed, but none as yet, who can call themselves positivists, believers in the new dogma of its non-existence. And, as my old master Bristowe lately remarked to me, the burden of proof lies with those who would deny that the peritoneum is liable to those general constitutional causes which set up inflammation in other serous membranes.

I will now detail a case of primary uncomplicated acute peritonitis which ended fatally.

Case 1.—Sarah Thomas, eleven years. Five days before admission she was suddenly seized with severe pain in the belly and with a desire to defecate. Straining at stool increased her pain and produced no motion. On the second day diarrhœa set in and lasted 48 hours. She vomited several times on the second and third days. On admission her temperature was 103° to 104° : the breathing was quick and thoracic: cheeks flushed: pulse small and hard: tongue had a thick yellow fur: the abdomen was hard and resistant, especially in the right lumbar and hypogastric regions. The temperature gradually fell to normal on the fourth day after admission, and she died on the sixth, that is the eleventh day of her illness.

Autopsy.—Brain and its membranes, heart and pericardium, kidneys, pleuræ and spleen all healthy. Lungs had slight collapse with hypostatic congestion of both lower lobes. Liver was pale and fatty. There was general purulent peritonitis: much yellow lymph with several ounces of pus. Intestines were healthy, having neither ulceration, rupture, nor strangulation: stomach also healthy. The ovaries and fallopians were normal though matted with lymph. There was no vaginal discharge nor any sign of caries or abscess about pelvis or abdomen.

This case may fairly be called, I think, one of uncomplicated primary acute peritonitis. That such are rare I need not say. In fact it is the only one I can find recorded in our post mortem books during the last seven years.

But we have taken a very exclusive method of research. Judged by the same standard, primary pleurisy would similarly become one of the rarest diseases; indeed during the same seven years I did not come across a *single* instance of uncomplicated pleurisy in the *post mortem* records, unless a case of double empyema with great collapse of both lungs and considerable previous inflammation of these organs be allowed to stand as such.

Yet no one doubts the frequency of primary pleurisy. (I have not had time to enquire into the interesting question as to whether the older authors, before Laennec, deemed it as common as we do now.)

The reason is evident. Most causes potent enough to set up a *fatal* pleurisy would also have induced inflammation in other organs. A man has a slight chill and contracts simple pleurisy from which he easily recovers; he has a severe one, and pneumonia, pericarditis, meningitis, enteritis, and peritonitis—one or more—are added to the pleurisy and then he dies.

I will relate one such fatal case :

Case 2.—Thomas Arms, 50, well-nourished, no previous illness, six days before admission he was drenched in a thunder shower; during the storm he says he was struck down by lightning and lay on the ground for 10 minutes, he then got up shivering and walked home. His breath became very short and during the night and next day he was noisily delirious and remained very ill till admission. On admission he was stated to be moribund, examination impossible, but the pulse is noted as being small, very soft and compressible. At the section the state of things disclosed was as follows: Much yellow flaky lymph on both pleuræ with slight effusion of turbid yellow fluid into their cavities. Lower lobe of left lung solid in the grey stage of pneumonia. Right lung congested and oedematous. Heart :

40 ozs. of clear yellow fluid in the pericardium with universal, thick, yellow lymph. Extensive general peritonitis: yellow soft lymph. Brain not examined. There was old perihepatitis and the kidneys were slightly granular.

It is just the same with peritonitis: a slight chill produces an uncomplicated attack and is generally recovered from; a severer one adds the inflammation of other organs and the patient not seldom dies.

Case 3.—Cicely Moffat is an illustration of this. She was a delicate child four years old and on admission had broncho-pneumonia, pericarditis, and peritonitis. At the section a pint of pus was found in the pericardium while a considerable amount of purulent serum was loculated in various positions in the peritoneal cavity. The pneumonia had to a great extent been recovered from.

Case 4.—Clara Walters, six years, a child with bent tibiae, but no previous illness. The day before admission she was seized with violent abdominal cramp, vomiting, and diarrhoea. On admission she was found to have double pleurisy, with pneumonic catarrh and peritonitis. She died in fourteen days. At the section the left pleura contained some pus and flakes of lymph. The right pleura contained air with an ounce of pus at its base; the right lung being completely collapsed and carnefied. There was no evidence of pneumonia. The bronchial glands were large but not cheesy. The heart, pericardium, spleen, kidneys, uterus, and ovaries were all normal. General purulent peritonitis existed and the mesenteric glands were large but not caseous. There was some irritation of the intestinal mucous membrane but no ulceration.

These are not rare cases; we all recognise their existence. They by no means always die and the reports of the General Hospital contain records of not a few recoveries, two of which I will detail.

Case 5.—A. F. B., a well-developed, healthy-looking girl of sixteen. She, however, had had an attack of acute rheumatism eight years previously, followed by recurrences in the three

succeeding winters. The day before admission she had had several shivering fits with cough and frequent vomiting, and severe pain between the shoulders. At noon violent pains in the abdomen arose. Later in the day the breathing grew quick and shallow, the vomiting still continued, and the pain in both back and bowels increased. On admission I found her semi-delirious and constantly screaming, with both hands placed on the abdomen. Pressure upon this increased her cries. But though seriously ill she presented none of the extreme collapse indicative of internal traumatism. The pulse was quick but of fair size and rather hard; her face was flushed, and the thermometer registered 103° . Her breathing was almost entirely thoracic, and her abdomen acutely tender in all regions. So typically peritonitic did the symptoms appear that it was only some hours later, when making the routine examination, that I found the lower lobe of her left lung was solid, and that signs of commencing pneumonia existed also at the right base. For treatment she had mercury and extract of opium, one grain of each, every four hours with an ice bag placed on her abdomen. The next day the pain was nearly gone though the temperature reached 104° . In ten days she was convalescent. There was no evidence of any cardiac or renal affection.

Case 6.—J. Henry Towers, 14. Fifteen days before admission attacked with sudden pain, which was and has continued to be centred around the umbilicus. The next day the abdomen began to swell and has remained much distended ever since. The bowels were loose with two or three motions daily. He vomited once or twice but his appetite was good. He had some cough and expectoration. On admission he was poorly nourished. The tongue was clean and rather red. There was slight eructation with loose yellow stools, but no vomiting. The pain was still umbilical in situation and the abdomen was tympanitic and resistant with some oedema of its walls and its superficial veins enlarged. There was also slight rubbing over the base of the left lung. For the first three weeks the temperature was variable, averaging about 100° , it

then fell to 99° for some weeks longer. The diarrhoea also persisted and convalescence was protracted, but he eventually did well and left the hospital quite recovered.

The question is, how are we to classify these cases? In our reports the co-existing inflammations are all put down in the space set apart for diagnosis as if they were of equal value—none before or after other. And this seems to me the correct procedure: we may, clinically, diagnose the existence of one a day or so before the rest, but when the pathologist finds all the inflammations to be quite recent I think it wisest for us to consider them as all joint effects of one common cause. So considered they would all be equally primary, and I have therefore classified such peritonitis as primary.

A priori reasoning is in favour of this view: it would be indeed strange if the peritoneum should be the only serous membrane in the body which was insusceptible to the inflammatory action of chill, and I know of no other which is not considered liable to its action. The peritoneum is identical in structure with other serous membranes and is exposed to the same evils as they: why should it not suffer then similar sicknesses?

I therefore regard primary peritonitis as being usually one of the local expressions of the pathological condition brought about by chill; just as this same cause produces pleurisy, meningitis or pericarditis. Rarely it is the *only* expression of this catarrhal state; not seldom does it occur accompanied by a similar inflammation in some other organ.

Chill I believe to be its commonest cause, but just as we may have other forms of primary pleurisy, so may we have primary peritonitis arising from other causes.

For instance those cases I have quoted from Hilton Fagge were no doubt instances of *septic* peritonitis.

Trousseau speaks of peritonitis developing spontaneously in enteric fever. Amongst the illustrative cases he quotes one from his friend Thirial, which is so peculiar that I venture to briefly reproduce it.

Case 7.—A girl of 21, on the 20th day of a mild attack of enteric fever and after convalescence had commenced, was suddenly seized with symptoms of severe peritonitis and died in 72 hours. This onset of peritonitis followed upon a severe moral impression. Perforation was naturally diagnosed but none was found: there was nowhere even any intestinal ulceration; four or five darkened patches shewed as many Peyer's glands in a state of resolution, but that was all. In no other organ was anything abnormal discovered. General purulent peritonitis existed, the mesentery being especially affected. This Trousseau appears to have considered a case of psychical peritonitis.

That it may arise in the course of the specific fevers is universally recognised: I have not observed such a case myself, but Dr. Line, of the Borough Hospital, has kindly sent me the following.

Case 8.—A. M., 14, admitted with scarlatina anginosa. From the tenth day of illness green vomiting and diarrhoea persisted. There was no tympanites, but tenderness and retraction of the abdomen with marked facies abdominalis, delirium, and a small hard and irregular pulse. At the section general peritonitis with copious effusion of lymph was discovered.

All authorities allow that peritonitis is frequently secondary to renal disease. Henoch relates several such: one of these was in a boy eight years old, who had recently recovered from an affection of the joints, and who, during a hæmorrhagic nephritis was seized with an astounding succession of inflammations of serous membranes. First came an acute hydrocele of very severe character; then, after a uræmic attack, acute peritonitis occurred; and a few days later left pleurisy, accompanied by much exudation, set in; all these being proved at the autopsy.

Habershon, in a list of 262 sections in which peritonitis was found without any evidence of traumatism, states that 62 were due to Bright's disease. Now these cases are not supposed to be peritonitis from peri-nephritic extension, but to have arisen quite independently of local cause owing to the

morbid state of the blood set up by the renal lesion. I cannot believe that the kidneys are thus able to act as the original and active focus for disseminating peritonitic poison.

That chronic Bright's disease impoverishes the blood and renders the individual far more liable to external malign influences is beyond question. But this is only another way of stating that peritonitis arising in cases of Bright's disease occurs in patients of enfeebled constitution. And this seems to me the correct form of expression, and the same holds good for any and every acute illness which seizes upon such subjects. Still it is not usual, nor would it be wise, to say that all sufferers from this malady die of it and not from the intercurrent affections which more immediately carry them off. Very few acute attacks arise in perfectly healthy adults, and the reason is not far to seek: such beings are *rara aves* amongst us. But granular kidneys are no more the cause of peritonitis than is an enfeebled heart of pneumonia.

Such cases should also then come under the heading of primary peritonitis.

A CONTRIBUTION TO THE PATHOLOGICAL ANATOMY AND HISTOLOGY OF SCARLATINA.

BY GEORGE F. CROOKE, M.D. EDIN.,
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(Continued from page 264, Vol. xxi..)

We now pass on to the next series.

(B) Changes in kidneys from cases fatal between the 13th and 68th days* from the commencement of the fever, *in all of which the symptoms of nephritis were more or less established.*

Naked eye appearances.—The organs are always more or less enlarged, generally moderate in degree; the capsule strips easily;

* Or if we divide the periods into weeks, which corresponds better with clinical descriptions, we examined the kidneys from one case in the 2nd week, three in the 3rd, three in the 4th, three in the 5th, and two in the 6th. In addition we have three other cases reserved for detailed description.

outer surface smooth but mottled, *venæ stellatæ* prominent; cortex increased, especially the interpyramidal portions: it is swollen and somewhat congested, presenting a reddish grey or buff coloured mottling. The glomeruli stand out prominently, mostly as pale, but sometimes as hyperæmic dots above the cut surface. The medullary cones are of a diffuse deep claret colour, contrasting with the mottled cortex. Excepting the enlarged and prominent glomeruli, there is nothing distinctive in the macroscopic appearances. In two cases the enlargement of the kidneys was excessive, and in a third they were contracted and granular. We shall deal with each of these cases separately later on.

Microscopic examination.—Much has already been done as regards the evolution of scarlatinal nephritis in the study of the first week cases, and need not therefore be repeated here in extenso. In some respects the lesions in this series are undoubtedly variable in their characters; *but as in the first week, so in these cases in which nephritis was clinically established, glomerulitis is a predominant feature.* The point of departure in the variation of the lesions lies in the relative prominence of the epithelial catarrh on the one, and of interstitial changes on the other hand; so that our cases fall into two groups, or sub-divisions, which we shall make after considering the glomerular changes common to both.

The *glomerulitis* is in the main that of the first week, only *the glomeruli are hypertrophied* and the nuclear proliferation in some cases is even more intense. The capillary loops appear to have swollen up and become metamorphosed into opaque masses, which are mostly homogeneous in structure, sometimes faintly granular or striated, but everywhere beset with deeply stained polymorphous nuclei. It is seldom that red blood cells can be demonstrated in them, and their anæmic condition therefore is another prevalent feature. Where the interstitial changes are prominent, many glomeruli have undergone complete degeneration and atrophy (hyaline fibroid change).

The epithelium lining the capsule is as a rule only slightly proliferating (increase in nuclei).

SUBDIVISION I.—*Kidneys, in which interstitial changes come next in order of prominence*, from seven cases fatal in the 2nd, 3rd, and 4th weeks (the latest on the 28th day). Clinically, the fever ran a severe course; the pyrexia and constitutional symptoms were either maintained throughout, or resuscitated by fresh throat symptoms and secondary adenitis. The urine contained more or less albumen throughout, varying between a trace and a distinct cloud, but increased as the symptoms of nephritis developed. The cause of death was the exhaustion resulting from the fever *plus* the nephritis, *and not the nephritis alone*.

The interstitial changes, which consist in infiltrations of small cells are found: (1) at the periphery of the cortex beneath the capsule, (2) around individual glomeruli, or (3) more extensively, as Klein points out, in the deeper parts of the cortex near the boundary layer. In the latter place, they invade the adventitia of the blood vessels, whence they spread along their distribution into the cortex. Thus we may find oblong or oval patches here and there in the labyrinth surrounding the interlobular artery and vein, and the glomeruli and convoluted tubes appertaining to them; or in more extensive degrees spreading laterally to the medullary rays.

In the larger patches, the structural details, as Klein describes, are inextricably confused; leucocytes, lymph cells of various sizes, the outlines of tubules, and fragmentary epithelial cells are all jumbled up together in a mass, only the thickened wall of the artery in the midst is at all distinct. At the margins, the invading cells may be seen penetrating the tubules, dislocating the epithelial cells which are splitting up into nucleated fragments, much in the same way as we see it in surgical kidney.

The changes in the tubules, apart from the foci of interstitial inflammation, are swelling and proliferation of the epithelium in some of the convoluted tubules, slight fatty degeneration in others, the presence of granular matter, and sometimes blood and hyaline cylinders, chiefly in Henle's tubules.

SUBDIVISION II.—*Kidneys in which the catarrhal changes come next in order of prominence*; from five cases fatal in the 5th and

6th weeks. Clinically the febrile symptoms had abated, and desquamation was still going on. The albuminuria of the febrile stage had disappeared. The symptoms of nephritis became fully established by the middle or end of the 3rd week. *Death was due to the effects of the nephritis alone. The catarrhal changes vary somewhat in degree.* Convoluted tubules are seen dilated and filled with proliferating epithelium, especially the spiral portions. The increase in nuclei is also noticeable in some of the tubules of the medullary rays. In more advanced degrees, the swelling of the epithelium is greater: it is coarsely granular or reticulated, containing either droplets of a clear hyaline, or colloid material, or of fat (fatty degeneration). In some tubules the disintegration is considerable. *Interstitial changes are also present, but so slight,* that they might easily be overlooked. They are limited chiefly to a proliferation of the endothelium of the capillaries, or of the cells in the intertubular lymph spaces. Here and there periglomerular infiltrations are seen. The arteries and arterioles are thickened, but on the whole the vascular changes are not so prominent as in the first week kidneys. As we previously mentioned there are three cases to which we would draw special attention, on account of the exceptional character of the changes which the kidneys presented. They are—(1) Embolic interstitial; (2) Acute lymphatic interstitial; and (3) Diffuse interstitial (atrophic) nephritis.

(1) *Embolic interstitial nephritis* (or so called septic form), in a child æt. six years. Admitted on the 5th day of a severe attack of scarlatina. Throat conditions bad (ulceration of uvula and tonsil), accompanied with considerable swelling on the right side of the neck. Excepting a slight abatement on the 8th day, the severe symptoms lasted till the fatal termination on the 24th day. Desquamation noted on 9th day. Albuminuria variable; sometimes demonstrable as a trace or distinct cloud, sometimes absent, until the 17th day, when the quantity of urine was diminished and the sp. gr. fell to 1010. From this date albumen increased, was always to be demonstrated together with hyaline casts, leucocytes and a few red blood cells.

Necropsy.—Kidneys much enlarged, soft and flabby, capsule strips easily leaving a smooth ecchymosed surface. Cortex considerably increased, and infiltrated with small hæmorrhages (spots and streaks), alternating with swollen, semi-translucent, or opaque yellowish-white patches. Some of the latter shew minute centres of disintegration, but no abscesses containing pus are to be met with. *Microscopically*, we found emboli (1) in the interlobular arteries; (2) in the arterioles at their entrance to the capsule; and (3) even in the glomerular capillaries themselves. They were not of course present in every section we examined; but those in which they were found simply included *microscopic infarcts*, the largest of which measure $\frac{1}{10}$ inch in breadth. It is needless to say that the interstitial changes here were not only intense but also *associated with distinct necrotic changes*. In the central zones of the infarcts, all structural details are lost, nothing remains but a network of fibrin including leucocytes and swollen lymph cells. In the next, the tubules are widely separated from each other by the engorgement of the intertubular spaces with lymph and blood cells. The basement membrane is wrinkled, and the epithelium detached and shrivelling up into glassy looking masses devoid of nuclei. In the outer zone the intertubular cell infiltration is better defined, the tubular epithelium is much swollen and coarsely granular, and Henle's tubules contain numerous hyaline cylinders. The glomeruli shew well defined contours of the vascular tufts, in which the capillaries are dilated and sometimes filled with granular material. The nuclei are increased, and the capsular epithelium proliferating. As to the nature of the emboli, they are amorphous, granular or slightly fibrillated masses, tinging with eosine, but as to the relation to them of micro-organisms we can say nothing. The case happened to be one of the earliest under our notice, and we missed the opportunity of searching for them.

Klein has described *only one similar case** fatal on the 13th

* The number of Klein's cases is 23, including 13 fatal in the first week.

day, and lays great stress on the causal relations of the emboli to the interstitial process. Moreover, he thinks he has here found the explanation of all his later cases, in which interstitial changes certainly appear to have predominated in a remarkable degree. We would nevertheless reserve opinion on this point, until evidences of the more frequent presence of emboli have been adduced, for they are rarely met with.

From his descriptions, this form seems to correspond with Friedländer's interstitial septic nephritis, which he met with twelve times in 229 necropsies in scarlatina, though he does not say in how many of the twelve he found emboli. He remarks, "this form of nephritis we find frequently in combination with severe diphtheritic affections (phlegmon of throat). It comes under observation not so much in the scarlatinal forms of diphtheria, and is properly regarded as a severe form of septic nephritis."

We strongly suspect that many of the malignant forms of scarlatina bear a septic character, a suspicion that is certainly supported by the observations and experiments of Fraenkel and Freudenberg, quoted in the first part of our paper *. Nevertheless, our knowledge of the etiology of scarlatina itself, as well as of the relations to it of the so called diphtheritic and other affections of a septic nature is still very imperfect. For instance, in a case of continued severity and in a recrudescence of the febrile symptoms by secondary angina and adenitis—or as it is rather vaguely termed secondary infection—what means have we of knowing how far we are dealing with the effects of the scarlatinal contagion, or with the effects of an infection from a different source. We should none of us care to test the question by the experiment of exposing to such a case a susceptible individual, because we should fear the result. So far as our experience goes, we think pyæmia the septic complication that admits of the easiest diagnosis (multiple suppurative arthritis with metastases in the internal organs p. m.) As for cases of

* July, 1886.

complete relapse,* which undoubtedly occur, the nature of the secondary infection is self evident.

(2) *Acute lymphatic interstitial nephritis*.—For the subjoined report of the clinical history and necropsy of, as well as for the material from this case, we are indebted to the kindness of Dr. Blore, Medical Superintendent of the Borough Fever Hospital, Leeds.

Female, æt. 6, admitted on the 4th day of a pretty sharp attack of scarlatina anginosa; tonsils swollen and ulcerated; glands of neck enlarged, tender and subsequently suppurating; also considerable rhinitis and nasal discharge. Temperature curve moderately high and stationary (102-103° F.) till the 13th day, when it became remittent in character with a tendency to decline. At this time general improvement was noted; throat better and appetite good; and the patient was desquamating freely. On the 19th day a slight noiseless laryngeal cough was noticed; 20th day abundant râles all over chest but no dulness; 21st day passed a quiet night; in articulo mortis at 11 a.m., no apparent laryngeal obstruction. Urine—*albumen first noticed on 17th day*, and then slight in amount; *there was no other evidence of nephritis up to the fatal termination*.

Necropsy.—Tonsils healing; larynx lined with false membrane so thick as to obscure vocal cords; trachea normal; patches of consolidation (broncho-pneumonia) in both lungs; heart and pericardium normal. *Kidneys large, 12 oz.*, acutely inflamed. Capsule strips easily; cortex swollen, mottled, and studded throughout with whitish patches like lymphoid growth.

Microscopically, the lesion is that of an intense acute interstitial nephritis, differing from the case last described *in the absence of necrotic changes*. The patches of infiltration are certainly denser around blood vessels, whence they spread in all directions, and occasionally one sees a degenerating glomerulus in their midst (degeneration from compression). But smaller

* Case of scarlatina with complete relapse, under the care of Dr. Barrs.—Lancet, 1880, II., p. 102. See also: Dr. Jacob, B. M. J., May, 1885; Dr. Line, Clinical Notes on Scarlatina, Birm. Med. Rev., March, 1887.

patches of cell infiltration are also found scattered indiscriminately in the labyrinth and invading the medullary rays. The tubules are dilated or irregular in shape, and contain a clear exudation either in form of a reticulum or of individual droplets; in a tubule situated here and there amongst the denser parts of the infiltrations the proliferation of its epithelium (great increase in nuclei) is often conspicuous. *Otherwise both tubules and glomeruli are normal.* The infiltrating cells are individually well defined, and stain well with hæmatoxylin; some possess two or more nuclei, others frequently one well-defined nucleus, and show clearly the intra-nuclear plexus.

(3) *Diffuse interstitial nephritis*—contracted and granular kidneys. This case is one where, so far as we know, the inflammatory process was uninterrupted in its progress from beginning to end, and is *a direct transition from the early form to an interstitial nephritis, resulting in atrophy of the organs.* It is of unusual interest, and we give it in detail.

Clinical history, etc.—Male, 10 years old, previously quite healthy, was admitted on the 2nd day of a severe attack of scarlatina. Throat conditions severe, with adenitis going on to suppuration. Temperature curve remained high until 21st day when it fell to normal. *Up to this date the urine constantly contained albumen varying from a faint to a distinct cloud:* and a few delicate hyaline casts and leucocytes were also found. At this time he complained of headache and vomited occasionally; the bowels were loose but irregular. 27th day, headache and vomiting recurred with increased violence. Œdema of eyelids, face, and scrotum noticed. From this day the case was one of nephritis with well-marked symptoms. *The urine became perceptibly diminished on the 23rd day, sp. gr. 1017, cloud of albumen, few hyaline casts and leucocytes; on the 27th day diminished to 9 oz., reddish, smoky, albumen one-third, reddish brown deposit composed of red blood corpuscles, leucocytes and lymph cells, renal epithelium, numerous hyaline and cellular casts.* Under treatment it increased and became clearer again, but was always of low specific gravity, and contained *abundant*

albumen, and casts of great variety, amongst which granular and fatty casts were observed towards the end. On the 58th day he had severe uræmic convulsions; and on the 68th day œdema of the lungs set in suddenly and resulted in a fatal termination.

Necropsy.—Body warm, emaciated, general anasarca; anæmia and œdema of mucous membranes and subserous cellular tissues, excess of serum in pleural, pericardial and peritoneal cavities; both lungs highly œdematous, commencing broncho-pneumonia in upper and posterior part of right lower lobe; heart $4\frac{1}{2}$ oz., left ventricle hypertrophied, wall increased in thickness. *Kidneys weighed 4 ozs.*, capsules adherent, outer surface granular and mottled with hyperæmia; consistence firm, they cut with a perceptible resistance to the knife; cortex apparently not much diminished, of a diffused yellowish-white colour, but mottled slightly with hyperæmia. Glomeruli sometimes visible as pale translucent dots, otherwise obscure. The blood oozing from the medullary cones is thin, watery and of a claret colour.

Microscopical Examination.—Diffuse interstitial nephritis, in which the development of a fibro-nucleated tissue has advanced to a considerable degree. Under the capsule it consists chiefly of masses of lymphoid cells, but deeper in the cortex the nuclei are of various shapes, round, oval, spindle-shaped and stellate, and the fibrillated character of the ground substance is quite discernable. The condition of the urinary tubules also varies. Here and there small groups are comparatively normal, others are irregularly dilated, and their epithelium reduced to a narrow border of nucleated protoplasm; where the interstitial changes are prominently developed, we see many atrophied tubules—especially in the medullary rays, in which, though the protoplasm of the epithelium is reduced, marked proliferation of its nuclei is visible. This we regard as an indication of a regenerative reaction on the part of the epithelium. In the lumen of the tubules are found hyaline casts and others of a material probably derived from the blood; they stain well with eosine. By far the greater number of the glomeruli have undergone fibrous degeneration and atrophy. The change is characterised by a

hyaline thickening of the capsule from without inwards, between the concentric layers of which lies flattened in spindle-formed cells, the proliferated capsular epithelium. In the earlier stages, their proliferation, elongation into curved spindle cells, and their imbricated arrangement leave no doubt as to the part they play in the fibroid degeneration. In hæmatoxylin preparations it is difficult to define the limits of the capsule, and distinguish it from the fibrous thickening without and within. But in the method of double staining with eosine and methyl violet, these details are clearly differentiated. Other glomeruli, though their capillary tufts are opaque, are evidently permeable to blood and contain rows of red blood corpuscles.

Concluding remarks on the Kidney Changes.—We undoubtedly met with Friedländer's catarrhal nephritis in our first week cases, but regarding the alterations in the glomeruli and blood vessels, we agree mainly with Klein, to whom undoubtedly belongs the credit of first describing them and drawing attention to their importance. In their order of sequence we place the first week changes as follows :—(1) Those of the glomeruli and blood vessels; (2) Epithelial catarrh; (3) Interstitial cell proliferations. *As in other acute infectious diseases, so in scarlatina*, we must direct our attention to the altered state of the blood, which becomes charged with deleterious materials derived from the primary inflammatory foci in the organs of the throat. And since the function of the kidney in relation to the blood is pre-eminently excretory, it is, therefore, not surprising that its complicated vascular apparatus is the first to feel the effects of the poison. The slight foci of interstitial inflammation, in the development of which the white blood cells in all probability take considerable part, we would refer to a thrombosis excited by the altered conditions of the vessel walls. Friedländer falls back upon a similar etiology for his cases of post scarlatinal nephritis. Here, however, we have to reckon with *facts he does not admit, viz., the primary injury which the glomeruli and blood vessels have already sustained in the first week*. That they have in some measure recovered their normal

condition is shewn by the absence of albumen during the quiescent period* that often precedes the nephritis of the third week. But whether the recovery is complete or not we cannot say, though we think it unlikely. At all events, in a fresh attack of inflammation they are the first victims, and the progress of the changes taking place in them is often very rapid as early fatal terminations prove.

More important is the question *whether a genetic relationship can be established between the changes found in the first week and those of so called scarlatinal nephritis*. Here opinions differ. Friedländer recognises three well differentiated forms. (1) *The initial catarrhal nephritis*; (2) *The large flabby hæmorrhagic kidney, interstitial septic nephritis*; (3) *Glomerulo-nephritis, which he considers the true scarlatinal nephritis*. He describes it as *a pure glomerular form; the parenchyma and the interstitial tissue being quite normal*. It begins usually in the third or fourth week after the febrile symptoms have abated.† Langhans‡ shares very much the same opinion about the last form being typical in scarlatina.

Klein on the other hand concludes, from the examination of his cases, *that scarlatinal is an interstitial nephritis, commencing early in the 2nd week and gradually increasing in development*. Hortoles|| and Kelsch§, while recognising the glomerular, also bring forward the interstitial changes as equally prominent. From such conflicting views we must turn to our own cases. Those in subdivision II. correspond clinically, and in a great measure pathologically, with Friedländer's 3rd form, the only point of difference being that we could not overlook the

* Probably the clinician could help us here, and, by frequent observations on the urine during this period, including urea estimations, inform us as to the manner in which the organs were performing their function.

† He says moreover: "there is no evidence to prove that a genetic relationship subsists between these three forms; transitional forms do not exist, and mixed forms are quite the exception."

‡ Virch. Archives, Bd. 99, he has, however, met with an equally severe form of glomerulo-nephritis in a case of measles.

|| Etude du processus histologique des Néphrites, 1881.

§ Archives de physiologie, 1874.

catarrhal changes present. Those in subdivision I. correspond pathologically in all respects with Klein's later cases ; and there exists a further similarity between them, that all were fatal about the same period. Further we would refer the reader to the clinical aspects of these cases, from which it might be inferred that *in cases of recrudescence or continued severity of the febrile stage, interstitial nephritis is the commoner form*. Possibly Friedländer would regard these as slighter forms of his septic nephritis ; still the fact remains that they occurred in the course of scarlatina ; and until we know where the scarlatinal process ends, and that of secondary infection begins, they merit the title of Scarlatinal Nephritis equally with his 3rd form (Glomerulo-Nephritis).

From the variations we have observed in the lesions, we believe that *no form of nephritis is pathognostic for scarlatina, any more than for other acute infectious diseases* ; and we regard it as *an acute diffuse nephritis, in which the glomerular changes undoubtedly play a predominating rôle from beginning to end*. Moreover, as to *whether a genetic connection between the early and later forms exists*, we think *our cases abundantly prove that it sometimes does*. In formulating our conclusions on scarlatinal nephritis, we would lay stress on the following points :—

- (1) Already in the early stages of the fever, changes have appeared in the kidneys from which the severer forms of nephritis can develop.
- (2) Glomerulitis is a constant and predominating feature.
- (3) Parenchymatous and interstitial changes are secondary, and their relative prominence would appear to depend on variations in the clinical aspects of the cases in which they occur.
- (4) Lastly we meet with kidneys in which the interstitial changes are most acutely and intensely developed. These changes are dependent on, if not caused by, other factors, such as embolisms and acute lymph cell infiltration (Wagner's acute lymphatic nephritis). Both forms are rare.

Before concluding this paper it is necessary for us to make

some observations on the relation of the changes in the glomeruli to nephritis in general. The discovery of a "glomerulonephritis," by Klebs, and the subsequent teaching of Cohnheim,*—that the inflammatory changes in the glomeruli are in themselves sufficient to explain the cardinal symptoms of acute nephritis—impressed pathologists with the importance of devoting closer attention to these structures in pathological conditions of kidney. And the results of enquiry in this direction are abundantly shewn in recent literature on nephritis.† In fact they have gradually tended to remodel our ideas on the entire subject of the pathology of Bright's disease.‡ Inflammatory changes in the glomeruli are by no means characteristic of scarlatina only, as was once believed to be the case; *they are found in greater or less degree in all forms of acute and sub-acute nephritis*, in those accompanying various specific febrile diseases, viz:—enteric, diphtheria, measles, puerperal fever, pneumonia, and ulcerative endocarditis; as well as in the idiopathic forms. In the large white kidney (sub-acute and chronic diffuse nephritis) they are equally as prominent as in scarlatinal nephritis. In the pathology of Bright's disease generally, the glomeruli have gradually emerged out of the back ground in which they formerly stood, and are claiming greater consideration and importance in the sequence of pathological events. Cornil and Ranvier tell us they are almost always the first structures affected in kidney disease.

In the acute nephritis occurring in the specific febrile diseases we have enumerated, Langhans puts the changes in the fol-

* Vorlesungen über allgemeine Pathologie, vol. ii., Ed. 1880.

† See Report of discussion on albuminuria, Glasgow Med. and Chir. Soc. Glasgow, 1884.

‡ Cornil and Brault. *Les Etudes sur la Pathologie du Rein*, 1884.

Cornil: various papers in the practitioner, 1881-84. Also art. on kidney in *Manual of Path. Hist.* Translated by Alice M. Hart.

Hortoles: *Etude du processus histologique des néphrites*, 1881.

Langhans: *Virch Arch.* Bd. 76 and 99. These are valuable contributions to the study of the inflammatory changes in the glomeruli.

Nauwerck. *Beiträge zur pathologischen Anatomie und Physiologie*, 1881.

Ribbert. *Nephritis und Albuminurie*, 1881.

lowing order of sequence :—(1) Glomerular ; (2) Intra-tubular (concomitant) ; (3) Interstitial (secondary) ; but attaches great pathological importance to the first named, and classifies the nephritis into grades according to the degrees of glomerulitis present.

Regarding the intimate nature of the glomerular changes, our knowledge is somewhat indefinite, and we possess at present no *schema* for glomerulitis. Some authorities limit the changes to proliferation and desquamation of the glomerular and capsular epithelium, or the formation of a reticulum from the inner wall of the capsule, containing lymph, epithelial and red blood cells, which gradually encroaches on the capillary tufts and strangles them. Others, while admitting that the proliferation of the epithelium may take some share in it, regard the process as mainly an *intracapillary change*. In slighter degrees, it consists in swelling and proliferation of the endothelium ; but in extreme degrees the capillary becomes much swollen, and distended by a reticulated exudation of a hyaline like substance, which springs from the swollen endothelium ; in it are found proliferated nuclei and leucocytes, and the whole may eventually undergo a hyaline degeneration, so that the capillary lumen becomes effectually blocked.

About seven years ago we saw two cases of idiopathic nephritis in adults, in which the glomerular changes are certainly extraordinary in their character.* Both were fatal after two to three months' illness ; in the one, complete suppression of urine existed during five days ; in the other case, during three days immediately preceding death. The kidneys in both were greatly enlarged and hyperæmic, and of a diffused deep red colour throughout. In the large number of sections we examined scarcely a single intact glomerulus was seen. The histological changes are the following :

The space between the capsule and tufts is occupied by a reticulated and fibrillated exudation which includes desquamated

* See also an interesting series of cases of idiopathic glomerulonephritis recorded in the Brit. Med. Jour., 1881, by Dr. Leech of Manchester.

epithelium, leucocytes, and degenerated nuclei. A colloid material is also often present, resulting from a metamorphosis of the cells and exudation. The capillary tufts are infiltrated, fused together, and contain nuclei, but they are gradually strangled by the encroaching exudation until, in some examples, hardly a trace of them remains. It is worthy of remark, that the intra-capsular process is mainly a degenerative one and shows no tendency to organise into a hyaline fibroid, nucleated tissue, as we saw in our last case of scarlatina. The remaining changes, though secondary, are equally great; they consist in swelling, desquamation and degeneration of the epithelium of the tubules, many of which contain detached vesicular cells; great engorgement of the capillaries with swelling and desquamation of the endothelium, and the presence of numerous leucocytes within and lymphoid cells without the lumen.

In conclusion, it will be seen that the changes in the glomeruli in nephritis are constant though variable, but nevertheless important; and we agree with Langhans that they are a subject worthy of great attention in the future pathology of Bright's disease.

REVIEWS.

PILOCEREUS SENILIS.*

A DELIGHTFUL book—no one can gainsay this criticism of Dr. Moxon's posthumously published work. Alas that we should have to say posthumously! Such men as he dwell in sad scantiness within the ranks of medicine; we are all so absurdly anxious nowadays for wealth and notoriety that we seem to have clean forgot the goal of noteworthiness and worth: worth not in the sense of money value or brilliant effervescence, but in its higher meaning of moral and intellectual virtue—in the sense in which old Fuller intitled his "Worthies of England and Wales."

* *Pilocereus Senilis*, and other Papers. By Walter Moxon, Physician to Guy's Hospital.

Very seldom does the medical reviewer come across such a book ; but, when it comes, he hails it as a true oasis in the barren desert of would-be facts, a crystal spring amidst the stagnant pools of statements dull as platitudes, and yet, often we fear, of but doubtful accuracy.

Its mere diction is deliciously refreshing ; for it revives the almost dead hope in our breast that the combination of literature and medicine is not entirely a thing of time past. In our too-great hurry of production we so sadly forget the noble dignity of the art we follow ; we rush in hot haste to the printer's with any little scrap of knowledge we can glean and thrust it before the world like a jewel in a swine's snout instead of first striving with loving reverence to place it in a fit setting of silver or fine gold ; we do not even allow ourselves time for the reflection whether the garments in which we dress our nursling are decent enough to obtain for it a respectable hearing. How differently do we treat our own mighty personalities ; probably no men appreciate the value of right raiment more highly than the disciples of medicine ; but may-be this is because we feel our pettiness and hence remember and act upon the adage "Fine feathers make fine birds." It is said that "Beauty unadorned is adorned the most," but equally true is the exquisite old song—

"My Love in her attire doth show her wit,
It doth so well become her ;
For every season she hath dressings fit,
For Winter, Spring, and Summer.
No beauty doth she miss
When all her robes are on ;
But beauty's self she is
When all her robes are gone."

Such a Love is Medicine ; but unfortunately for her we can each see only some minute portion of her as "beauty's self," or in the beauty of her chosen vesture : we have for the most part to be content with her clad in the meagre coverings fashioned by ourselves. Surely then, if she be our Love—as indeed she ought to be—we should spare no pains so to dress her that we may least disguise her glory and not, with hasty irreverence, cover it up wellnigh past all recognition with the coarse sacking of clumsy diction.

“ . . . Is it not the same, too, with the little spare intelligence one carries? It seems as if one would with it ‘get up’ all the things that need be known, let alone a lot of shining quotations. But just as the first few purchases open your eyes to the end of your shillings, so when you try to learn what others around you know so extensively and well, then you find what a little stock of spare intellect you really have about you at any time.” Humorously and yet plaintively true is this. Have we not all experienced this sensation of chimerical capacity in our youth, when the power of procrastination was still ours and able to hide from our minds how empty and vain was the fancy? But soon the days of sober mid-age come and dispel the illusion, teaching reluctant us the fallacy of “I cannot now but I will.”

Here is another happy paragraph from the Essay on Conversation in which he speaks of the different kinds of goodness, and has just exclaimed, “For, alas! goodness may be showy even to vulgarity, as it may be noble,” and then continues, “Remember it, especially when you are in the society of those in whom not mere goodness, but a certain refinement is required. For please observe that a *right refinement constitutes the goodness of the better classes*.* I say a right refinement, that naturally is averse from the kind of sensational goodness which loves prominence and recognition, and will allow no concealment of its superiority to the common little enjoyments of its not equally goody neighbours. True goodness is not the sort you pride yourself in and force upon others. True goodness is a thing ascribed to others, rather than felt inside, since the days of the Pharisee and Publican.” This last sentence is peculiarly happy in its expression and places pointedly before us a very deep truth. But the whole quotation is a gentle protest against those noisy and intrusive reformers who force their wares upon you both in and out of season, who indeed seem to grow more fervid

* The italics are the author's.

and more possessed with their unholy zeal the more unseasonable the time may be—just as if the keener the pain they inflict on their too-sensitive victim the greater would be the glory of their reward, since its infliction must needs add fresh weight to the cross they have so ostentatiously placed upon their own shoulders. But here comes in the fallacy they refuse to see; the extra load is scarce felt by their coarsely robust mentalities, and serves but as the flick of a whip to a well-fed horse.

In another place our author tells us how much of human restlessness is due to the consciousness of faculties which we cannot use for want of energy to put them in motion; and that hence when we come across a master-mind possessing this energy we greet him with joy and jog along in the traces happy and contented enough, for this leading spirit enables us to use our surplus faculties without absorbing any of our scanty supply of initiatory energy, all, and more than all of which we feel we want for our own main life-work. And then, having so delivered himself he proceeds with this startlingly unorthodox statement—"In another aspect you will see that the power of Prayer is of the same kind. For this waste of which I speak can be got hold of and used strongly by spiritual conviction, as well as by the influence of other minds. Here, perhaps, is the greatest prospect of a fruitful economy—the great store for the future to develope." Lo! a very Niagara of faculties spent on the intangibilities of creed! On the telling of beads, the utterance of multitudinous words, rhapsodic fervour and saintly elation. "Ah," Pilocereus seems to cry out, "if only this could be converted by some mighty master-turbins into strivings after knowable unknowns, mundane philanthropy, instruction of ignorance and useful mechanic toil! So that the world of humanity might grow the more beautiful; for does not honest labour wear a lovely face, and is not a thing of beauty a joy for ever? And who can desire for himself or others more than everlasting joy?" Only too true indeed all this. But if humanity acted up to it then would she be a most unnatural humanity, for does not the old world show us in every cranny

and corner that Nature is a very prodigal with her wealth and fills the spheres with the luxuriant growth of wasted faculties. Ay, and do we not love her for it? Just as we love women for their piquant want of logic—for their exquisite lack of the sense of due proportion when they think us husbands so much wiser and better than we think each other—and, indeed, for all their other delicious but imperfect graces which fascinate and hold us in willing slavery far more than any accurately co-ordinated perfection of theirs could ever do. Why, what says the daintiest of philogynists:—

“
A winning wave, deserving note,
In the tempestuous petticoat ;
A careless shoestring, in whose tie
I see a wild civility ;
Do more bewitch me, than when art
Is too precise in every part.”

Yes, Pilocereus notwithstanding,—and we feel sure he would have been the very first to shake hands in laughing agreement with us—we must have our wasted faculties. They, perhaps more than aught else, keep plaintive sentiment within us. And what more than this keeps pity near us? Are they not too the chief elements of that touch of nature which makes the whole world kin? Ah, yes! For it is they which make us join with one accord in the universal cry, “we have done those things which we ought not to have done, and have left undone those things which we ought to have done. *Miserere nobis.*”

We have wandered on till our space is almost filled, we shamefacedly discover, with our own petty cogitations. Yet we will not repent for what could more plainly indicate the initiatory energy of Pilocereus' master mind. There is room, however, for one more quotation and it shall be from his *Essay on Faith*, and this shall stand out in a paragraph by itself, unsullied by any evilly-smelling reviewer's garnishment.

“How many men endure much ennui and languor because their circumstances are quiet, and they have an immense lot of things in their minds, various and dubious, because conflicting; and yet nothing obliges them to decide. The fact is, that in

their quiet times men don't know what it is to believe; but sterner issues now and then arise, and men have to say what they are for. Then arises belief, and afterwards faith. Then faith becomes real; you live in it and die for it. But in quiet times men forget what faith is, and are apt to have no faith, and to lose the true meaning of the word; so that they drop down from faith to belief, and from belief to mere knowledge, until they treat all these distinct things as if they were the same, and forget that *knowledge* is the crowd of things which have been at various times accepted by the mind, and *belief* is the perception of an issue arising out of matters of knowledge; and faith is the devotion of your whole nature to that issue; so that where no such issue arises there may be knowledge, but no belief; and where the issue does not cause devotion of your feelings their may be belief, but no faith."

But Pilocereus has gone. Never again will his classic tongue delight old Guy's with clear-cut argument and brilliant epigram. And yet,—he has not gone. His toil is done; and so the labourer rests. But in the aftermath of life he sees us pluck with childish eagerness the fruit of his skilled growing, and smiles with calm content thereat—musing to himself the while, "Non omnis moriar."

MANUAL OF BACTERIOLOGY.*

PHOTOGRAPHY OF BACTERIA.†

THE appearance within so short space of time of a Second Edition of Dr. Crookshank's Manual of Bacteriology abundantly proves the appreciation the work has deservedly earned, and

* Manual of Bacteriology : being an Introduction to Practical Bacteriology. Illustrated with coloured plates from original drawings, and numerous coloured illustrations embodied in the text. Second Edition, 8vo, 21s. By Edgar M. Crookshank, M.B. Lond., F.R.M.S., Demonstrator of Physiology, King's College, London.

† Photography of Bacteria. Illustrated with 86 photographs reproduced in autotype, and numerous wood engravings. Royal 8vo, 12s. 6d. By Edgar M. Crookshank, M.B. Lond., F.R.M.S., Demonstrator of Physiology, King's College, London.

confirms also our opinion, that it would supply a want felt by those unable to consult the widely disseminated literature in German and French, which has appeared chiefly in the form of monographs or of contributions to various scientific journals. In its practical bearings, especially however on medicine, it is naturally based on the labours of Koch and his numerous followers in the same wide field of enquiry. This the author himself gracefully acknowledges; the work therefore, is no mere plagiarism, but throughout its pages it is manifest that it has been a labour of love, and the outcome of an extensive practical acquaintance with the subject. The present edition has been thoroughly revised and kept up to date; it has moreover been considerably enlarged by the important additions and alterations it has received. The author arranges his subject matter in three principal sections as follows :—

1. On the general technical methods employed in microscopical research, and in cultivation experiments; 2. Deals with the general biology of bacteria, and includes additional chapters on "Antiseptics and Disinfectants," and on the subject of "Immunity;" 3. Opens with a chapter devoted to the classification of bacteria, and then treats descriptively and seriatim of the various genera and species, particularising those associated, and those unassociated with disease, and describing their characteristic behaviour in the different nutrient media employed in their cultivation, and the special methods in staining for their demonstration. In addition there are important appendices on (*a*) yeasts and moulds; (*b*) on certain flagellated monads recently discovered in mammalian blood by Timothy Lewis and others; (*c*) on the methods of examination of air, soil, and water for micro-organisms; and lastly (*d*) a very complete Bibliography of the literature on Bacteriology. Excepting a description of the employment of the warm stage, the gas chamber, and the application of electricity in the observation of bacteria under the microscope, the part on technical methods remains much the same as in the first edition, and we have nothing to add to our former opinion as to the clearness with which these are stated.

Anyone who will note the number of times *sterilized* is used as a qualifying word, and learn its practical application, will understand the care and minuteness of detail, necessary in every experimental procedure that is to be attended with satisfactory and unquestionable results.

The chapters included in Part II. form quite a new feature. That on the general biology of bacteria is necessarily maintained within moderate limits, compatible with the scope of the work as a practical manual, but contains all the essential points the student should know. The distinctions drawn between antiseptics and disinfectants are of practical interest to the practitioner and sanitarian, and from the account given we gather that corrosive sublimate has probably been over-rated as an antiseptic; at all events it is not at present likely in practical application to supersede carbolic acid. Regarding the relative value of dry and moist or steam heat as disinfectants, opinion seems now to be in favour of the latter, owing to its superior penetrative power. Nevertheless exposure of articles to a dry heat of 220° Fahr. for an hour is deemed sufficient to destroy the activity of most of the contagia associated with the infective diseases with which we have to deal in actual practice. Regarding the still much debated question of the classification of bacteria, the recent views of De Bary and Hueppe are epitomised, but the author still adheres, with some reservations, to the classification proposed by Zopf, as being provisionally the one of most practical value to the bacteriologist. Thus the generic term bacterium is retained for species, which are distinguishable from those included under the term bacillus by the fact that spore formation is either absent or unknown. It is in the bacillary forms that spore formation has been observed and studied, particularly the endogenous variety. From a scientific point of view this distinction is valuable, because it is founded upon a study of the life history of the organisms in question. We are, nevertheless, loth to dispense altogether with a simple and ready method of distinguishing the two by differences in form, or in

the ratio of breadth to length in the rods, especially when called upon to determine, as far as possible, the characters of micro-organisms in any given preparation.

It is the systematic and descriptive part that will, we think, be most interesting to the medical practitioner. All those forms associated with disease, as pathogenic and putrefactive organisms, have received special attention from the author, and the main facts connected with each carefully considered. The text is interspersed with a number of new, and mostly coloured woodcuts, while the admirable series of plates are all placed at the end of the book for convenience of reference. In subsequent editions we think that the bibliography, however useful, must of necessity be limited, for a glance through it alone gives one a fair idea of the immense advances recently made in bacteriology, which is now gradually establishing itself as a distinct subdivision of labour in the wide field of pathological inquiry. As a handbook for laboratory practice, we are of opinion, that no better guide could be placed in the hands of the students, and it should at the same time be a welcome addition to the library, as a book of reference, for every intelligent practitioner wishing to keep his knowledge abreast of the times. The improvements have necessarily increased the price of the book, but as in the first, so in the second edition we think the balance is considerably in favour of the book.

No pathological laboratory of the present day can be said to be fully equipped without the necessary apparatus for Photomicrography, and in laboratories connected with large important medical schools the application of this branch of Photography has been in use for class purposes, such as illustrating lectures and demonstrations, for some time. The work before us will be found a useful supplement to the "Manual," especially for those who possess the means and leisure to make practical use of it. The plates are very good, particularly the uncoloured series from unenlarged negatives, which are distinguished by their clearness and sharpness of detail. As the author remarks in his

preface, we have still to wait and see what the new apochromatic object glasses will accomplish for us in Photo-micrography.

As regards the illustration of sections of tissues we are still in favour of drawings, and would at all times urge the student to train his eye and hand so as to become efficient in this useful accomplishment.

RETROSPECT.

RENAL AND URINARY DISEASES.

BY ROBERT SAUNDBY, M.D. EDIN.; F.R.C.P. LOND.

Diabetes.—In the last report on this subject attention was directed to two new tests for sugar introduced by Molisch, but it has since been shown that neither the thymol test nor the α -naphthol test has much value as the same reaction may be obtained according to Seegen with peptone, pure egg albumen, serum albumen, casein and other albuminoids. Fehling's solution should still be regarded as the best practical test for sugar in the urine.

Allusion has also been made in these reports to the frequency of the loss of the knee jerk in diabetes, and the conclusions of Prof. Bouchard have been cited, according to whom this sign is of bad prognosis. But it is also worth remembering that diabetes and locomotor ataxy are not very uncommonly associated. Althaus gives several cases. A gentleman, aged 66, recently seen by the reporter has had diabetes for three years, and has been strictly dieted. Lately he began to suffer from pains in his legs and sudden weakness of the knees causing him to fall when out walking. He staggers when standing if he closes his eyes, and when walking if his attention is called away he has had to seek support to prevent a fall. The knee jerk is absent in both legs, and the pupils react sluggishly to light. Dreyfus (Revue

de Médecine, 1886, p. 1028), has met with a case of glycosuria in a woman aged 68, in whom the knee jerk was exaggerated.

Dr. Frew has recorded (Glasgow Medical Journal, 3rd April, 1887), a remarkable instance of hereditary diabetes in a little girl aged 9, whose paternal grandfather, aunt and uncle had all died of diabetes.

The exact relations of the liver to sugar production in diabetes are still unknown. The teaching of physiology would suggest the probability of an excessive conversion of glycogen in cases of cardiac disease where the blood stagnates in the liver, but clinical observations do not bear this out. It is also suggested that in liver disease the glycogenic function would be diminished in proportion to the destruction of liver cells. Roger (Revue de Médecine, Nov. 10th, 1886) has found sugar in the urine in three out of six cases of cirrhosis of the liver, also in prolonged jaundice, and extensive hydatid disease, but these observations are not in accordance with common experience and require confirmation.

It is well known that in all severe cases of diabetes, in spite of the withholding of starchy and saccharine articles of food, a very large quantity of sugar, often as much as one or more pounds daily, may be excreted by the urine. Seegen contends that the liver can manufacture sugar from peptone, and has sought to prove this by digesting pieces of liver with peptone. In answer to certain criticisms which suggested that the sugar came from the liver itself, he has shown (Pflüger's Arch. xl, p. 48) that the presence of peptone is essential to the success of the experiment.

The subject of diabetic coma is still interesting. Railton and Southam publish a case (Med. Chronicle, April, 1887) which was only remarkable for the circumstances that "an hour before death the face, extremities, and surface of the entire body became of a bright red colour, like a boiled lobster; and just before death the hands and feet became perfectly black for the space of about five minutes." V. Jaksch has discovered the presence of volatile fatty acids in the blood and urine of diabetics, and suggests that these participate in the "acid

intoxication" which, according to Minkowski and others, is the cause of the phenomena of diabetic coma.

The importance of getting really trustworthy articles of food for diabetic patients cannot be doubted. It is therefore to be regretted that there are many high priced articles in the market which are worthless for the purpose for which they are sold. The following note, which we print in extenso, is from the British and Colonial Druggist of April 2nd, and gives the results of some analyses made for the reporter by Mr. F. B. Alcock.

Gluten Bread, as is well known, is used as a substitute for ordinary bread in the dietetic treatment of diabetes. The mode of preparation is so designed as to reduce the proportion of starch, as far as possible, by means of washing. What quantity of this latter constituent may be safely allowed to remain in the loaf has not been definitely stated, but Dr. Pavy, in a recent communication to the *Lancet*, (v. March 5th), places it as low as 25 to 30 per cent., though he complains of so-called gluten bread and biscuit containing 70 to 80 per cent., and even 84 per cent.; and bread made from ordinary flour only contains about 90 per cent.

Before the letter referred to above had appeared, I had been engaged on an analysis for Dr. Saundby (Physician to the Birmingham General Hospital), of three samples of gluten bread, supplied to me by him, and it may be interesting to give my results in detail. They are as follows:—

	English.	French.	American.
Moisture	9'20	9'30	47'10
Sugar	2'56	2'50	5'26
Fat	1'90	2'50	1'20
Insoluble Carbohydrates	39'33	33'28	36'61
Nitrogen	7'00	7'84	1'19
Gluten (= N $\times$ 6'33	44'31	49'62	7'53
Ash	2'70	2'80	2'30

Calculated as Dr. Pavy suggests for the samples dried at 212° F.:—

Gluten	48'80	54'71	14'20
Insoluble Carbohydrates	43'30	36'60	69'20

I am informed by Dr. Saundby that the English sample is from one of the best London makers, and he tells me that both it and the French are, in his opinion, as good as are generally made. The French bread is slightly superior in appearance as well as in composition, while it is also cheaper.

The third sample (American) is worthless. It looks like what it is, a cheap coarse bran bread, but when sold at gluten bread prices it is little better than a fraud.

The results tabulated above show that there is still something to be desired, even in the best specimens of this article, if Dr. Pavy's estimated proportion of 25 to 30 per cent of starch is practically attainable.

It would be interesting to know whether there are any other specimens in the market which give better results as regards the amount of starch present.

Albuminuria in Health.—Prof. Grainger Stewart, in a paper read before the Royal Society of Edinburgh, states that albuminuria is present in about 30 per cent. of the community generally; it is increased by breakfast, and by excessive exertion, though moderate exercise diminishes it. It increases in frequency as life advances. It is liable to be produced by cold bathing. The existence of albuminuria is not *per se* a sufficient ground for rejection of a proposal for life insurance. These conclusions are not new unless we except the high estimate of the prevalence of albuminuria in the community generally, which requires confirmation; but we are very glad to welcome the support of Dr. Grainger Stewart as an important aid to their acceptance by the profession and by Insurance Offices who are much concerned in the matter.

Bright's Disease.—Dr. Peters (Therapeutic Gazette, Dec. 15th, 1886), writes strongly in favour of corrosive sublimate in the treatment of chronic Bright's disease. Increase in the quantity of urine was the most noticeable result; the albuminuria was less affected. Calomel is less effective.

Reagent Capsules as Tests for Albumen and Sugar in the Urine.—Dr. Edward Stutz, of Jena, has suggested the employ-

ment of small capsules filled with a test powder for urinary examinations. For albumen he employs a mixture of corrosive sublimate and common salt, a very fallacious test, as we know that it gives rise to a white precipitate in normal urine, the so-called leith-albumen, which is probably a compound of calomel and urea. For sugar he employs an alkaline copper sulphate mixture, or bismuth, but these do not act well. Probably picric acid powder supplied in the same sized capsules would be useful.

Incontinence of Urine.—Dr. Williams recommends the use of anodynes *per rectum* in the treatment of incontinence of urine in children. For a child of five years he employs a suppository containing ext. belladonnæ gr. $\frac{1}{8}$, morphinæ gr. $\frac{1}{16}$, or the same drugs may be administered in a very small enema of warm water. But it must be remembered that there are often removable causes of incontinence. Elongated or tight prepuce has perhaps been a little too much insisted upon by our surgical colleagues, and prepuces are perhaps too ruthlessly snipped off, not always with satisfactory results. Thread worms are a well-known cause. Tight or ill-fitting drawers or knicker-bockers must not be overlooked. The urine should always be examined. In a very obstinate case where this secretion was limpid and *alkaline* when passed, a cure was effected by the use of a mineral acid mixture with a little euonymin.

ANATOMY.

BY PROFESSOR BERTRAM C. A. WINDLE, M.A., M.D.

Misplacement and Abnormalities of the Kidney.—Mr. Sutton, at the Meeting of the British Gynæcological Society, Feb. 9th, exhibited a case in which the kidney lay over the left sacro-iliac synchondrosis, and was covered by the first part of the rectum. Three arteries entered at the hilus, one from the left common iliac, the other two from the right. The vein entered the

inferior vena cava midway between the point of confluence of the common iliac veins. The ureter was double for the first inch of its course.

Prof. Wenzel Gruber (*Virchow's Archiv.*, Bd. 107, Hft. 3, s. 489), has also described a singular anomaly, one indeed unique in his experience. There was no kidney on the left side, but on the right was an organ which consisted of two parts, the upper vertical, the lower transverse, which represented the two kidneys. There was no isthmus at the place of union. The upper had its hilus anteriorly and internally, the lower, anteriorly and centrally. Both ureters ran on the right side of the vertebral column. The combined organs lay in the right lumbar region and partly in the right iliac fossa. They were supplied by five arteries and gave out three veins. Three of these arteries sprang from the right side, two from the left, but all of course turned towards the right side of the body. The superior and middle right and the superior left branches sprang from the aorta, the inferior right from the right common iliac, while the inferior left came from the left. One vein came from the upper hilus, two from the lower, the inferior of these wound round the aorta, turned under it from the left side and entered the inferior vena cava on the left. This vein received the left supra-renal vein.

In the *Journal of Anatomy and Physiology* (Vol. XX., pt. 3, p. 510), Dr. Menzies relates two cases of single kidney. In the first, the right with its adrenal was absent, no trace being found of any rudiment of either organ. In the second case, it was the left kidney which was wanting together with its adrenal. The right organ had three arteries, one from the normal place, a second from just above the bifurcation of the aorta, and a third from the right common iliac.

These cases, together with others of the same and similar nature, are of much practical interest as bearing upon the surgery of the kidney, and especially upon the question of the relative advantages of nephrectomy by lumbar or abnormal incision. One of the most interesting points is that which relates to the occurrence of abnormal arteries, a subject which

was exhaustively dealt with some time ago by Macalister (*Jour. of Anat. and Phys.*). Henle believes that they occur once in every seven subjects, Bruce Clark in a recent work considers that one in thirty would be nearer the mark. Morris (*Surgical Diseases of Kidney*), says that they are more often increased than decreased in number, though both have been seen to spring by a common stem from the front of the aorta. The abnormal arteries may spring from the aorta, suprarenal, lumbar, internal, external or common iliacs, from the middle sacral, right hepatic or colica dextra. I have recently seen in Queen's College dissecting room a somewhat anomalous pair of kidneys, of which a note may not be out of place in this report. Both were decidedly elongated and narrow, and in both the ureters emerged in three pieces which united a short distance from the kidney. On the right side there were three arteries (1) from aorta in usual place, which passed behind inferior vena cava, its own and the middle renal veins. This divided immediately after its origin into two vessels, a large inferior and a small superior which ran side by side and entered the kidney, the former at the pelvis, the latter at the upper end; (2) also from aorta a little lower down, this crossed in front of the inferior vena cava; (3) from aorta just above bifurcation. This, which was the largest branch, entered the lower end of the kidney. On the left side there were two arteries; (1) from usual place, divided into two very tortuous branches which entered the kidney the one at the hilus, the other at the upper end; (2) from the front of aorta just above its bifurcation, this passed to the lower end of the kidney. The left upper vein passed behind the aorta and was directly continuous with the vena azygos major, which was of abnormal size, the renal portion ending as usual in the inferior vena cava. In a second case where the kidney (R.) was possessed of two ureters which united just above the bladder, there were also two arteries both from the aorta, one arising close by the coeliac axis, the other from beside the inferior mesenteric. It is obvious that the securing of the vessels in either of these

cases would be a work of some difficulty if the organ were approached from the loin.

The Limb Plexuses.—Papers have recently appeared bearing upon the relations of the Brachial and Lumbo-Sacral Plexuses. The former has been dealt with by Herringham (Proc. Roy. Soc.) whose conclusions are as follows:—

1. Any given nerve fibre may alter its position relatively to the vertebral column, but will maintain its position relatively to other fibres.

2. Of two muscles or of two parts of a muscle, that which is nearer to the head end of the body tends to be supplied by the higher, the nearer to the tail end by the lower nerve.

3. Of two muscles that which is nearer to the long axis is supplied by the higher nerve, that which is nearer the periphery by the lower.

4. Of two muscles that which is nearer to the surface is supplied by the higher, that which is further from it by the lower nerve.

5. As to sensory nerves:—Of two spots on the skin that which is nearer to the pre-axial border is supplied by the higher nerve.

6. Of two spots in the pre-axial area the lower is supplied by the lower nerve, but in the post-axial the lower is supplied by the higher.

The Lumbo-Sacral Plexus forms the subject of a communication by Paterson (Journ. of Anat. and Phys., Vol. xx., part 3, p. 407). The sciatic nerve appears to be single because of the unity of the sheath which surrounds it, but if this be opened, the two popliteal nerves can be found separate up to their origin. The hamstring branches accompany these and spring from the internal popliteal. The nerves which form the two popliteals are the descending branch of 4th lumbar, 5th lumbar, and 1st and 2nd sacral, each of which divides into two parts, anterior and posterior. All the anterior trunks unite to form the internal popliteal, all the posterior in the same manner form the external.

The internal also has a root from the 3rd sacral nerve. The remaining branches are derived as follows :—

Small sciatic from 2 and 3 sacral.

Pudic „ 2, 3, and 4 „

Superior gluteal „ post. divisions of 4 and 5 lumbar and 1 sacral.

Inferior „ „ „ „ 1 and 2 sacral.

N. to obturator int., from 2 and 3 sacral.

„ „ gemelli and quad. fem., from int. popliteal trunk.

„ „ pyriformis, from post. division of 2 sacral.

The anterior crural and obturator nerves are derived from the 2nd, 3rd, and 4th lumbar cords, these last dividing into anterior and posterior portions. The posterior form the anterior crural ; the anterior, the obturator. Thus the author points out, that those parts of the limb which receive their nerve-supply from the anterior crural, external popliteal, and superior and inferior gluteal nerves, belong in a primitive condition of the embryo to the *dorsal* or external surface of the flattened bud, which is the precursor of the limb in the adult. On the other hand, those parts which are supplied by the internal popliteal and obturator nerves, belong to its *ventral* or internal aspect.

The Closure of the Fœtal Vessels.—In a monograph on the Healing of Arteries after Ligature, Dr. J. Collins Warren devotes some space to the consideration of this interesting question.

The vessels studied were the ductus arteriosus and the hypogastric artery; the former was examined at term and at various other dates up to 47 years of age. Preparatory to absorption the tissues of the ductus appear to undergo hyaline degeneration a few weeks after birth. The outermost walls alone remain, these being, perhaps, as a matter of fact, connected with the aorta and pulmonary artery. The outer wall, a few weeks later forms a layer of circular muscular fibres, which encloses the tissues of the ligament and is continuous with the tunica media of the great vessels. The ligament when fully formed, consists of fibrous and elastic tissue, constituting a dense bundle of longitudinal fibres, which contains a moderate number of spindle cells. This

bundle is enclosed by circular muscular fibres, outside which is the adventitia. The axis usually contains a small vessel traceable either to the aorta or to the pulmonary artery and apparently of secondary formation. The closure of this passage is interesting from the proof which it affords of the power of the muscular elements to form new tissue.

"The activity," says the author, "of these cells was observed in a number of specimens, examined a few weeks after birth, and the developed cicatrix shows bundles of cells, which not only resemble muscular cells, in their shape and size, but which can be traced directly into the media, and the musculo-elastic layer of the intima, where muscular cells are always found in abundance. The changes seen in the wall of the ligament are alone sufficient proof of the power of this cell to take part in formative processes, a rôle which, curiously enough, has been almost universally denied to it by pathologists." In connection with the second vessel examined the author writes as follows:—"A study of the changes observed in the hypogastric artery after birth brings out a close resemblance to the changes seen in arteries after amputation. In the earliest period we find contraction of the vessels in their entire extent with occlusion of the distal portions by thrombosis. Later a growth from the inner wall is observed in each case, and finally new blood channels are established within the old, the newly formed vessels being accurately adapted to the decreased blood supply. In the hypogastric artery there is the most satisfactory proof of the formation of new muscular fibre, which taken with the observations in amputation stumps, shows that, even in this form of healing after ligature, new muscular fibre may be produced."

NERVOUS DISEASES.

BY C. W. SUCKLING, M.D. (LOND.), M.R.C.P.

Paralysis consequent on Parotitis.—M. Joffray (*Progrès Médical*) has described a form of paralysis resulting from parotitis. It affected all four limbs, beginning apparently in the lower and extending to the upper. The paralysis was preceded by pains of a lancinating character. It was accompanied with abolition of the reflexes—knee and plantar. The muscles failed to respond to the faradic current, and their sensibility was increased, any slight pressure on them causing pain. The special senses were intact. Cure was effected in one case in the course of four months by the administration of iodide of potassium. The symptoms present in these cases were those of multiple neuritis.

Antipyrin in Migraine.—Dr. Sprimon has stated in a Russian Medical Journal, quoted in the London Medical Record, Jan., 1887, that he uses antipyrin in all cases of hemicrania, and as a rule obtains excellent results. The drug should be administered during the period of the prodromal phenomena, and when given at this period it cuts short the paroxysm within an hour. The dose required is one scruple. Many physicians in addition to Dr. Sprimon have found antipyrin useful in hemicrania.

The Medication of Nerves and its application in the treatment of Neuralgia.—Dr. J. L. Corning (*The New York Medical Record*), first enunciated the law that to prolong the anæsthetic effects of a local anæsthene it is only necessary to keep the drug in permanent contact with the nerve. His method of treatment in obstinate neuralgia is (1) To introduce the anæsthetic (cocain) into the skin by the hypodermic syringe or by an electro-chemical method. (2) After the area in question has been well saturated with the medicament, it is covered with a piece of fine wire gauze. (3) By means of a T-shaped block of wood and an elastic strap, uniform pressure is maintained upon the wire gauze.

The object of the wire gauze is to distribute the pressure at given intervals throughout the anæsthetic zone. By this means the pressing out of the anæsthetic from the tissues is avoided, while if pressure is made by a smooth surface this pressing out takes place.

Thomsen's Disease.—Two cases of this rare and interesting complaint are reported by Dr. Buzzard in the *Lancet*, May 14th. These are the only two cases yet described in this country. The chief symptom of the disease, which is named after its discoverer, who suffered from it himself, is tonic spasm catching the voluntary muscles as they are about to be put in action. If the patient has been at rest for a little and attempts to make a movement the muscles contract and remain contracted, and a very strong effort is required to make a fresh movement. On shaking hands he is unable for a time to unclasp his hand, on seating himself he is often unable to flex his knees, etc. The difficulty is only temporary, in beginning to move after rest or in changing one movement for another. Sensation and the reflexes are usually normal. The disease is congenital and hereditary.

Nitro-glycerine in the treatment of Epilepsy.—Dr. Dabney, writing to the *New York Medical Record*, strongly recommends the use of tri-nitrin in the treatment of epilepsy. He mentions the case of a girl who had been a sufferer from epilepsy for two years, having fits almost every day. The bromides had been tried with but slight relief. She was given nitro-glycerine, one drop of a one-per-cent solution three times a day. She had one fit a few days later and then remained free from them for twelve months, the nitro-glycerine having been continued the whole time. A return of the fits in a mild form was at once checked by increasing the dose of the drug.

Spontaneous Fractures in Infantile Paralysis.—M. Berbez (*France Médical*, February) describes the case of a girl, aged 18, the subject of infantile paralysis, whose left arm was several times the seat of spontaneous fracture. She was suddenly attacked with paralysis of the left arm when 3 years of age, the

limb wasting. When 15 years of age she struck her arm slightly against a staircase; by this slight blow the humerus was broken transversely below the surgical neck. Consolidation took place in about three weeks. A few months later a slight fall caused a fracture of the middle portion of the humerus which rapidly united. Later on the patient broke the bone again in thrusting the arm into her sleeve.

Cardiac Complications in Tabes Dorsalis.—M. Teissier has recently demonstrated the existence of perforations of the aortic valves in ataxic patients. He considers that these perforations are due to a trophic change, and that they are strictly analogous to the ordinary perforating ulcer. These perforations are accompanied by an extreme thinning of the valve, and are found frequently in conjunction with visceral perforations. The perforations give rise to all the symptoms of aortic regurgitation.

Curability of Tabes Dorsalis.—M. Babinsky (reported in the *Lancet*, June 4th), has recently published details of several cases of ataxic patients who had been cured by revulsive treatment, blisters being applied to the limbs and body. In one case optic atrophy, lightning pains, gastric crises, and abolition of reflexes were present. The pains existed for twenty-five years, and then disappeared, recovery from all these symptoms taking place with the exception of the blindness. The patient ultimately died from pneumonia, and the spinal cord showed the typical lesions of locomotor ataxy.

The Lightning pains of Tabes Dorsalis.—Professor Germain Sée has recently extolled the anodyne properties of antipyrin, and has recommended this drug for the relief of the hitherto untractable pains of tabes. He reports five cases in which the pains were removed by its use.

Peroxide of Hydrogen in Epilepsy.—Dr. B. W. Richardson (*The Asclepiad*, October, 1885), recommends peroxide of hydrogen in the treatment of epilepsy, and mentions several cases successfully treated in this way. It should be given in what is known as the ten-volume solution. One fluid drachm

three times a day in water with a drachm of glycerine to hide the taste. The dose may be increased to two or even three drachms.

Weighted Shoes in Locomotor Ataxia.—Dr. Allan Hamilton, in the Boston Med. Surg. Journal for Jan. 21, 1886, recommends the use of weighted shoes for the relief of ataxic gait in tabes dorsalis. The weight, which should not be so great as to produce fatigue, may consist of a leaden insole or of a plate fastened between the soles. The anterior part of the boot only must be weighted to aid the peroneus longus muscle which in this disease is always weakened. The toe weights serve two purposes—1, to overcome the tendency to violent hyper-flexion; 2, to create an exaggeration of subjective consciousness of movement and location. The loss of plantar tactile sensibility is compensated for by the perception of weight. Dr. Hamilton claims for this treatment that it greatly adds to the comfort of the patient and improves his gait.

Local News.

LEAMINGTON SPA.—The first of June was a great day for this beautiful Midland watering place. On that day the Speaker of the House of Commons re-opened the pump room and baths which had been closed for repairs. These have been of a most extensive character, indeed to the visitor everything seems to be newly done according to the very latest fashions of medicinal spas. There are 18 baths, with a large swimming bath of warmed saline water; these baths have two most comforting features: the adjoining dressing-room is so shut off from the bath that one can dress away from the damp atmosphere of steam and wet floor of splashed water, and in the second place they are warmed by open fires—a luxury no English man or woman will be slow to fully appreciate. There are baths of all the various descriptions usually seen at similar health resorts, including a very well appointed Turkish bath, the frigidarium of

which is exceedingly lofty and of charmingly quaint architecture. The whole building is lighted by electricity, and each bather can touch his electric bell whilst still luxuriating in the water.

As to the character of the water we cannot do better than quote from Dr. Garrod's speech on the opening day: "The composition of the waters of the Leamington springs closely resembles that of many continental waters which have obtained considerable reputation—as that of Kissengen and Homburg, and there is no reason why the Leamington springs may not prove equally efficacious as any of these." We have, ourselves, compared their virtues with that of other well known waters of similar constitution, and as far as chemical analysis goes, there seems no good and sufficient reason why we should have the trouble, the expense, and often the pain of leaving our own land in search of health.

But the beauty of Leamington's neighbourhood and the delightful gardens and open cleanliness of Leamington itself, add very greatly to its value as a health resort; we firmly believe such features to be almost equal in importance with the water drinking and bathing themselves, and quite certain it is that many sensitive and refined patients should never be sent to places destitute of natural beauty however highly-vaunted their potent waters may be. Such resorts must necessarily add a positive drawback to this negative one; people must have distraction, else would they die of *ennui*; if then they cannot get the pure kind supplied by nature herself, they fly to the late hours and ill-ventilated amusement-rooms of civilisation's own morbid creation.

One other health-giving feature of our own Spa it is impossible to overrate; we refer to its water supply: the entirety of which, we understand, is derived from a deep Artesian well. The latest authority on Carlsbad Spa, a book the third edition of which is published this year by a physician resident there, has these two sentences:—"For the town of Carlsbad this water is a great blessing. Most patients not being allowed to drink wine or beer, or at the most in very small quantities, *and the*

common drinking-water being generally almost unfit for use, it is a great boon that we are enabled to recommend to our patients the Giesshübler water.* It is indeed a greater blessing than may at first sight appear, and one which is but seldom attained, this obtaining of a pure *tasteless* water in a district where all the water-giving strata have so large an admixture of soluble salts.

We sincerely trust that this fresh outburst of energy on the part of our Leamington friends will be well sustained and will result in the steadily increasing popularity of the most delightful town in one of England's fairest counties.

New Books, etc., Received.

- A Practical Treatise on Diseases of the Eye. By Dr. EDWARD MEYER, Prof. à l'école pratique de la faculté de Médecine de Paris. Translated by FREELAND FUGUS, M.D. London: Chas. Griffin and Co. 1887.
- Hay Fever, Paroxysmal Sneezing and Rose Cold. By MORREL MCKENZIE, M.D. Fourth Edition. London: Churchills. 1887.
- The Practitioner's Handbook of Diseases of the Ear and Naso-Pharynx. By MACNAUGHTON JONES M.D. London: Churchills. 1887.
- Von Ziemssen's Handbook of General Therapeutics. Vol. VI. Electro-Therapeutics. By WILLIAM ERB, M.D., Prof. of Clinical Medicine at Heidelberg. Translated by A. DE WATTEVILLE, M.D.
- Vol. VII. The Therapeutics of Circulatory Derangements. By Prof. M. J. OERTEL, M.D. of Munich. Translated by EDWARD J. EDWARDES, M.D., M.R.C.P. London: Smith, Elder and Co. 1887.
- The Nature of Fever. By DONALD MACALISTER, M.A., M.D., F.R.C.P. London: Macmillan and Co. 1887.
- A Practical Treatise on the Diseases of the Rectum. By ALFRED COOPER, F.R.C.S., Surgeon to St. Mark's Hospital. London: H. K. Lewis. 1887.
- Abdominal Surgery. By J. GREIG-SMITH, M.A., F.R.S.E., Surgeon to the Bristol Royal Infirmary. London: Churchills. 1887.
- L'Année Médicale: Résumé des progrès réalisés dans les Sciences Médicales. Publié sous la direction du Dr. BOURNEVILLE. Paris: E. Plon, Nourrit et Cie. 1887.
- Recherches Expérimentales et cliniques sur le traitement aseptique de la Phtisie Pulmonaire. Par le Dr. A. FILLEAU et le Dr. LEON PETIT. Bulletin No. 2. Curabilité de la Phtisie. Paris: Octave Doin. 1887.
- Notes from Private Practice. I. On Sore Throat. By JOHN HADDON, M.A., M.D. Edinburgh: MacLachlan and Stewart. 1887.
- Birmingham Halfpenny and Farthing Dinners. Report for 1886-1887. Birmingham: Robert Birbeck. 1887.
- Pocket Case Book. Designed by A. T. BRAND, M.D. London: H. K. Lewis. 1887.

* A bottled effervescent water. The italics are our own.

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ORIGINAL COMMUNICATIONS.

ON STRANGULATED HERNIA.

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To attempt to deal with the whole subject of strangulated hernia in a single paper would be unwarrantably absurd. My remarks will be confined, therefore, to a few points only connected with the diagnosis and treatment of this condition. The following observations have been derived from personal experience, and I venture to submit them to the members of the Midland Medical Society in the hope that fallacies may be pointed out for subsequent correction, and truths indicated for future guidance.

Given a hernia, what are the symptoms of strangulation? Irreducibility, vomiting, constipation, and increased tension are the cardinal signs, and of these I am inclined to think that the latter is of the greatest importance. A hernia may be and often is irreducible without the fæcal and blood currents through it being in any way interfered with. The most common cause of irreducibility is adhesion of omentum or intestine to the hernial sac; usually the former. Vomiting results from so many circumstances, especially in disorders in any way connected with the abdomen, as to make it a very unreliable sign of strangulation when taken by itself. Moreover, I have seen several strangulated hernias where vomiting was absent—either never having occurred at all, or having occurred and been forgotten, or having entirely passed

away before the condition of the patient began to appear critical. The same may be said of constipation. It is not uncommon to find when a loop high up in the small intestine is the part involved in a hernial protrusion that masses of fæces from time to time are brought away by enemata. This fæcal matter is probably below the entangled gut at the time when constriction occurs, and its escape is by no means therefore a certain indication of intestinal patency.

The most important sign of strangulation, and in my opinion it is far and away the most important too, is that of *increased tension* of the hernial sac. *Of* such significance is this phenomenon, and so little does it appear to be understood, that I propose to devote more than passing notice to it. I do not remember a single strangulated hernia where increased tension was absent; nor a really tense hernia which was not strangulated. By strangulation most authors mean that the fæcal flow through the gut is arrested, and that the circulation of the blood through the vessels of its walls is stopped. The former arrest may be present without the latter: and when this is the case, the condition is one of incarceration, and the obstruction is rather the result of paresis of the bowel muscle than of constriction at the neck of the rupture. The second condition, arrest of the blood circulation, cannot exist alone, for when the constricting pressure is sufficient to arrest the passage of the blood through its vessels, the fæcal flow must be stopped also. The amount of pressure necessary to check blood circulation is very small, and need not be so firm as to give rise to sloughing or ulceration at the seat of pressure.

By increased or *plus* tension, I mean an increase in the tension of the contents of a hernia over that of the belly—out of which they have escaped. Plus tension is only to be appreciated by comparison with the state of the patient's abdomen at the time of examination. For the better understanding of this phenomenon we must briefly consider the relations existing between hernial and peritoneal cavities, which are by no means separate spaces. They are surrounded by one com-

mon investment, the peritoneum. They communicate with each other through an aperture in the abdominal wall, out of which the hernia is protruding; and so long as this communication exists, the tension in both cavities *must* necessarily be precisely the same, and the only way in which relative alterations in their tensions can possibly be brought about is by shutting off the channel of communication between the hernia and the peritoneal cavity. The truth of this statement is evident if we test it by such an apparatus as I have used to illustrate the point to my clinical class. We may regard the abdomen as a closed box shut in by the abdominal muscles, and containing an elastic lining, the peritoneum. A hernial sac resembles a protrusion of this elastic lining through a hole in the walls of the box. Now if we examine the tension in the cavity of such a box and in the cavity of an artificially-made protrusion, we find they are the same; and if we increase or diminish the pressure in the one, we equally raise or lower that in the other, and there is no possible means of varying these pressures except by closing the aperture of communication between the cavities. If we find in this mechanical contrivance that the pressure in the protrusion is greater than that in the box—*i. e.*, that the tension of the one is higher than that of the other—we know with absolute certainty that the connection between the two has been “choked;” and so also may we as assuredly diagnose strangulation when we encounter unequal tensions between peritoneal and hernial cavities.

In examining for tension we must distinguish between it and mere hardness, such as we find when a hernia is inflamed and the surrounding structures are infiltrated with oedema; or as is sometimes present in mere incarceration. The absence of heat; redness and pitting on pressure will negative the former, and the latter may frequently be recognised by “modelling” the faecal mass with the fingers. After having eliminated incarcerated and inflamed ruptures from our consideration, it is usually easy then to say whether the tension of a hernia is above that of the belly cavity or not, and when we

have assured ourselves that the tension is "up" we may assume that strangulation is present; and whether it is gut which is included in the strangulating structure or whether it is omentum only, the character of the percussion note, the vomiting and constipation will enable us to decide. The more I reflect on the mechanism of tension the more certain does it appear to me that plus tension and strangulation are practically synonymous with each other.

I firmly believe that tension cannot rise in a hernia in the absence of constriction, and it is almost equally true that constriction cannot be present without increase of tension rapidly following. I can conceive two conditions only where strangulation may exist without increased tension being present—one where the hernial cavity is large and contains fluid, and the protruding gut is small—Littres' hernia for example—and does not come into contact with the sac wall even during examination; the other where a tense hernia has become flaccid from the giving way of gangrenous bowel.

I hold that all hernias should be relieved by operation within a certain number of hours after the sign of plus tension has been recognised, if the protrusion refuses to release itself under the influence of pelvic elevation and a locally applied ice bag. The number of hours I would allow depends upon (1) the degree of tension; (2) the age of the patient; and (3) the size of the hernia. I would allow none to wait longer than 24 hours, and in most cases I would give an anæsthetic at once, and, if taxis failed I would proceed to herniotomise straight away. The older our patient the sooner we must relieve him; the higher the tension the more urgently is reduction called for; the smaller the hernia the quicker must it be liberated, because under any or all of the above conditions is gangrene or ulceration of the bowel likely to occur.

The seriousness of the small tense hernia is well illustrated by a case under treatment in January of this year. A stout grey man, 52 years old, was admitted into hospital with an umbilical hernia scarcely $1\frac{1}{2}$ inches in diameter, but as tense as a drum. It

had been down only fourteen hours at the time of the operation, which was performed extra-peritoneally. He died somewhat unexpectedly on the fourth day, and *post mortem* examination shewed a gangrenous knuckle of small intestine which had given way and deluged the peritoneal cavity with fæces.

The value of plus tension as a sign of strangulation is well seen in a case of double femoral hernia, which came under treatment about two years ago. An elderly woman was admitted to hospital with symptoms of intestinal obstruction, attributed to a *right*-sided femoral hernia as large as an adult fist. It was noticed that the tumour was soft and flabby, but, nevertheless, symptoms of obstruction being urgent, she was put on the table to have her hernia relieved. When she was under the anæsthetic, a hand placed in the *left* Scarpa's triangle detected a deep-seated hardness at the site of the femoral ring, and more careful examination suggested the presence of a small overlooked tense strangulated hernia here. The accuracy of this opinion was soon made evident by operation. The left small hernia was exposed and opened; it contained a coil of blackish bowel tightly strangulated at Gimbernat's ligament. The right side was operated on at the same time and found to contain perfectly healthy but adherent omentum. It was the absence of tension from the rupture first observed which led me to examine the other hernial sites with the result above indicated.

I have little to say upon the general question of methods of operating. All incisions should commence over the necks of the tumours and should be as limited as possible, not longer than one or two inches to begin with; because if further room is required the incision may be extended upwards and downwards in the direction of the swelling as far as may be necessary. I have never yet laid a hernia open from top to bottom according to the usual custom of the older surgeons. The sac must be thoroughly exposed before any attempts are made to divide "extra-peritoneal constrictions," and this is best done, I think, by cutting carefully on to the tumour without the employment of forceps and director. If you begin to pick up structures with

dissecting forceps and divide them one by one on a director, you make many anatomical layers which have no real existence, and you confuse yourself so much that you fail to recognise the sac itself when you come down to it. All herniotomies should be "extra-peritoneal" when possible, that is to say, if there is no absolute contra-indication to the procedure. If a small knuckle of gut has been tightly strangled and for many hours, it is doubtless better to ascertain its condition before reduction, but inasmuch as we usually try to return every rupture by taxis, I fail to see why when we resort to operation, it can logically be held that we should straight away proceed to open the hernial sac before attempting reduction as some surgeons teach us, unless it be that an opening into the peritoneal cavity is a positive gain to a patient, and this I am not prepared to admit.

When a hernia is returned by operation, I regard the procedure as incomplete unless the surgeon goes on to removal of the hernial sac; and in most cases this can be satisfactorily done. The chief advantage of this supplementary so called "radical" cure is that it leaves our patient with a shut peritoneal cavity into which inflammatory products from the wound can find no entrance. In my own operations I have almost given up attempting to suture the pillars of the rings together. I am content to tie a silken ligature round the isolated neck as high up as possible, and cut away the superfluous sac below it. This is easily accomplished in ventral and femoral, but is much more troublesome, indeed sometimes it is impossible in inguinal hernias, especially if they be of the congenital or infantile varieties. Suture of the opening into the sac is then the best procedure to adopt.

I have cut away omentum on many occasions without once having to attribute a death to this complication. Silk is the material with which to ligature before cutting it away; catgut is unreliable. I have a piece of omentum weighing more than two pounds successfully removed from a man 35 years of age, who came under treatment for strangulated

inguinal rupture. I have ceased to suture hernial wounds in old people as I believe there is considerable risk in stitching them up. I was led to abandon sutures in such cases from losing a patient with spreading gangrene beginning about a small femoral wound not more than an inch in length, but which had been closely stitched and allowed to remain undisturbed for several days. I find that recovery is not delayed by leaving wounds open to granulate in elderly people.

In umbilical and ventral hernia I always make an incision above the tumour altogether, cutting through the uninvolved abdominal wall exposing the hernial aperture from without rather than from within as is done when the hernia itself is cut into. I met with a case about six weeks ago where a ventral hernia made its appearance in a man 76 years of age, immediately below and in contact with the tip of the ensiform cartilage. Here I was compelled to make a wound below the tumour. I experienced no difficulty in exposing and enlarging the opening in the linea alba and reducing the rupture. The patient has made a good recovery. I have not used the carbolic spray nor Listerian dressings for several years.

I have met with one case where I divided an abnormal obturator artery in making the deep incision for the relief of a femoral hernia. The bleeding was very free, and its source was easily appreciated. The sac had not been opened. I introduced the herniotome a second time and divided Gimbernat's ligament through to the pubes, with the object of completely severing the injured vessel. After this procedure the bleeding continued but was easily arrested by a conical plug of lint introduced so that its apex lay in the divided ligament and in close proximity therefore to the open ends of the injured artery. Although this happened in one of my fatal cases, the injury to the vessel was not altogether responsible for the death of the patient. The dangers which attend a wound of an abnormal obturator have, I think, been much exaggerated. If we treat it like a wound of any other vessel there is little to fear from the complication. 1st, Be sure that the artery is completely cut

through; 2nd, apply pressure as in the above case; and 3rdly, cut onto the divided ends and tie separately if the bleeding still goes on.

Congenital hernia is more common than I had expected. I have met with four strangulated cases in my own practice, and have seen several others in that of my colleagues. It is important to bear in mind that both it and the infantile variety may occur at any time of life. I have seen a congenital hernia make its first appearance in a man fifty-one years of age. It is recognised with certainty only during operation, and then by finding omentum or bowel and testicle in the same cavity. Removal of the sac in congenital hernias, without sacrificing the testicle, is far from easy, but still with care it can often be accomplished. I have operated upon one example of hernia into the sac of a testis retained in the inguinal canal. The case is interesting because before his admission into the Queen's Hospital the tumour had been mistaken for an orchitis in an undescended gland. Much discussion has at one time or other taken place as to the proper procedure in such cases with regard to the erratic testicle. Many surgeons hold that we should spare the organ, and moreover that we should endeavour to entice it into its proper location. Inasmuch as most—if not all—testicles in the adult which are retained in the inguinal canal are known to be sterile, I think it is much better, after relieving the strangulated bowel, to perform a "radical cure" by excising the gland and its tunic. The procedure is extremely simple, and in the above case has proved perfectly satisfactory.

A most interesting hernia, from an anatomical point of view, came under notice in June, 1885, in a patient sent to me by Dr. Weston, of Handsworth. The case in all its external features was one of ordinary strangulated oblique scrotal rupture and it was only during internal examination that a most remarkable state of things revealed itself. In the first place the rupture was an infantile one, the tunica vaginalis testis had remained patent along the cord as far as the internal abdominal ring; the sac of the hernia had developed behind it, so that at

the time of operation a large serous cavity was first opened in which was seen the testis, and behind and beyond this lay the hernial sac proper. We had in fact, to incise two distinct and separate sacs, cutting through three serous layers before the bowel was reached. After the bowel had been exposed and the constricting structures divided the whole of the gut could not be returned, part of it went back, but a part remained behind, and what appeared very puzzling for a time was that instead of there being two pieces of bowel in the neck of the tumour as usually happens, *i.e.*, the part of the intestine passing into the hernia and the part passing out of it, one piece only could be found. This length of gut could be traced from the internal ring to the bottom of the hernial cavity and there it became lost, and it was only after the most careful examination that I at last hit upon the right explanation of this curious condition. The gut before us was a Meckel's diverticulum, about five inches long, adherent by its free end to the tissue forming the mediastinum testis. I dissected it away from its attachment, over an area as large as a shilling. It bled very freely from numerous small points which could not be tied. They were arrested with the actual cautery and the bowel was then returned into the belly. The patient recovered without a bad symptom, and left the hospital on the 19th day. Many interesting questions suggest themselves in this case; for example, the origin of the Meckel's diverticulum, whether depending entirely upon the gut being primarily adherent to the testis, or whether an irregularity in intestinal development which had become secondarily attached to the gland; whether it was better to dissect the adherent gut away from its moorings, or to cut it through close to the normal bowel and suture the divided end, and so get rid of a possible source of future trouble.

The first inguinal hernia I was ever called to operate on presented a complication which has not yet I think been fully described. The protruded coils of distended small intestine—probably nearly three feet in length—were matted inseparably together by old firm adhesions in such a manner as to form an

unyielding mass nearly as large as a foetal head and completely filling up the cavity of the sac itself. Efforts to disentangle the bowel or to empty it of its contents were futile, and it was therefore impossible to return the adherent mass of gut into the abdominal cavity through the inguinal canal even after free division of all constricting structures. Reduction was effected by slitting up the inguinal canal throughout its length and prolonging the incision nearly two inches up the abdominal wall. The sac was subsequently excised and the extensive wound carefully sutured. The patient, an elderly man, died on the 11th day from congestive pneumonia. The *post mortem* shewed the belly cavity to be perfectly free from complication, and the wound soundly healed. The previous history of the patient made it appear probable that these troublesome adhesions had formed sixteen or seventeen years previously.

I have notes of two cases of abscess in the sacs of hernias, both being inguinal, one occurring in a young man and the other in a woman. The former case was diagnosed as strangulated hernia with certain anomalous symptoms and only exhibited itself in its true light at the time of operation. In the latter a diagnosis of strangulated hernia was corrected before the tumor was cut into. Both patients had suffered from reducible hernias, and had worn trusses; both regarded their swellings as their ruptures at the time of coming under my care. There are several points in each of the cases of sufficient interest to occupy our time for a few moments.

Case 1.—A young man, aged 20, had a right sided reducible oblique inguinal hernia for 18 months, which had been easily controlled by a truss. During the six weeks preceding his admission to hospital he had suffered from what was regarded as "typhlitis." This he appeared to recover from so far, that three days before my seeing him he had been out for a walk, during which, as he thought, his rupture came down and he could not return it. On admission his tumour was painful and tense, and he appeared to be suffering severely from it. There was slight impulse on coughing; no redness or œdema

of the parts. I was led from his general state to advise immediate operation and found his hernial sac contained five or six ounces of pus only. The nature of the case, read by the light of the evidence obtained during operation, suggested that he had during his six weeks' illness been suffering from an acute intra-peritoneal inflammation ending in suppuration, and that the pus had made its way into the sac of his hernia. Whether this was a case of perityphlitis, commencing in the neighbourhood of the vermiform appendix, or whether it was in any way connected with the loop of bowel which had been in the habit of coming down into his hernial sac, I am quite unable to say. He has had no return of his hernia since.

Case 2.—A married woman, 27 years, had worn a truss for reducible right-sided inguinal hernia for three years. Rupture had not been down since last confinement, 16 months ago. Five days before admission felt pain and observed swelling at site of hernia, vomited several times, bowels constipated. On admission swelling was tense and tender, no impulse, operation revealed the nature of the tumour. As to the cause of her abscess I am still in the dark. Six months later no hernia had recurred.

A case somewhat like the above is under treatment at the present time. It was sent to me as one of irreducible hernia—probably strangulated—for immediate operation. A man, 35 years of age, had a smooth, fluctuating swelling, as large as a hen's egg, in the left inguinal canal, with marked impulse on coughing. It became more tense under pressure. The tumour had appeared gradually during two years, and had never lessened in size. It was opaque and tender. There was no sickness, but the bowels had not been moved for five days. A diagnosis of cyst—probably chronic abscess—was made, and the swelling was laid open and found to contain four ounces of thick material like yellow paint. A finger introduced into the cavity shewed that it filled up the entire inguinal canal. I think this tumour probably originated as a caseating lymphatic gland.

We are constantly on the look out for modern improvements in the treatment of diseases even which have been well understood since the time of Hippocrates; hernia amongst the number. Surgeons are still undecided on the treatment of gangrenous hernia, as to whether it is better to remove the mortified gut and suture the healthy intestinal ends together, or whether it is better to leave it alone either with or without incision of the constricting structures, or whether it is better to cut away the dead bowel and suture both ends of the healthy to the edges of the wound, thus forming an artificial anus which may be subsequently dealt with. I have only met with one case of gangrenous gut and that, as I have said, was returned into the belly by an extra-peritoneal operation and was not discovered until after death. Had I recognised it during life I should have performed the operation last mentioned in the list above.

Since this paper was read I have operated on a patient of my friend Mr. Oakes for gangrenous femoral hernia. All constricting bands were divided and the gut sutured to the skin. The lady has an artificial anus three months after operation which is gradually closing, and will I have no doubt be successfully dealt with.

I fear, sir, that there is much of the personal in the paper to which you have so patiently listened. I considered it more likely to be of service to those of us who encounter cases of hernia if I dealt with those points only which ordinary text books touch very lightly upon.

ELECTRICITY IN THE TREATMENT OF DISEASES OF WOMEN :

AN ACCOUNT OF VISITS TO THE CLINIQUE OF DR. APOSTOLI.

BY JOHN W. TAYLOR, F.R.C.S.,
SURGEON TO THE BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN.

FOR some years Dr. Apostoli of Paris has been engaged in the study and practice of the treatment of diseases of women by electricity; a gratuitous clinique being carried on by him at 19 Rue du Jour (aux Halles) in addition to his private practice.

Less a Parisian novelty than a legitimate outcome of the work previously done in this field by Dr. Tripier (some of whose instruments are used by Dr. Apostoli) it yet has sufficient originality to mark it as forming a distinct new departure in therapeutics. In addition to the practical work referred to, Dr. Apostoli has written largely on the subject and his works on the application of galvanism to the treatment of chronic metritis and uterine myomata are evidently being read with great interest by gynæcologists. To this result an extended circulation of his book on metritis has no doubt largely contributed.

Last year Dr. Munde of New York paid a visit to the Paris Clinique, and incorporated an account of this in an article on "Laparotomy in Europe," in the American Journal of Obstetrics for September, 1886.

This was to myself, as it was to many, the first introduction to the name and work of the Paris surgeon, and was noticed by me in the Birmingham Medical Review of the following December.

Since then the interest in this work has been gradually increasing (apparently more so in our own country than in Paris itself), and now, according to the British Medical Journal of July 16th it has become "sensational." However this may be, it is a work which calls for some patient investigation and study, and, if found worthy, of reproduction by those of us who are specially engaged in the treatment of uterine disease.

Last month Dr. Savage and myself went to Paris for the special purpose of examining into the details of the treatment for ourselves, and I have thought that a short notice of our visits to the clinique may be appreciated by readers of the Review.

Very central in position, but poor in immediate surroundings and approach, one goes up two flights of steps before entering the suite of rooms devoted to the gratuitous clinic. These appear to be three or four in number. The first a waiting room, the second a room containing a bed, and the third the chief apartment where the patients are seen. This contains a gynæcological couch with foot rests (the dorsal position being always used), a table at which sits an assistant or clinical clerk who takes the histories of the cases, and the various batteries and instruments used in the treatment of the cases. Two small cisterns, one of glass and the other of earthenware, are mounted at a convenient height and kept filled with weak sublimate solution; the one is used for a vaginal douche, the other for the hands of the operator and visitors.

On our first visit we were accompanied by Dr. Apostoli and Dr. Woodham Webb, both of whom we had already met at the house of the former. *En route* we were joined for a short time by an old friend, Dr. Bar, Obstetric Physician to the Hôpital Tenon, and at the Clinique there was, if I remember rightly, another surgeon waiting besides Dr. Apostoli's assistant and a nurse.

Every facility was given by Dr. Apostoli for the examination and interrogation of his patients, and Dr. Woodham Webb, who is evidently an earnest believer in the efficacy of the treatment adopted, was most kind and courteous in assisting us with words or more detailed explanation when our knowledge of the language failed.

The cases that we saw may be roughly divided into the following classes:—1, Unmistakable cases of uterine myoma; 2, Cases of chronic metritis with or without displacement; 3, Cases of chronic inflammatory disease of the appendages (usually called "Perimetrites"); 4, Cases of ovarian tenderness and neuralgia, with or without prolapse of ovary; and 5, Cases

in which (whatever the pelvic condition) reflex symptoms predominated, particularly vomiting and gastralgia.

This classification is made in order to illustrate the treatment used, at the same time it actually comprises nearly all the cases we saw, many diseases that we would have expected to meet being, for some reason or other, "conspicuous by their absence." I will take the classes *seriatim*.

1. The chief interest naturally centres about the cases of myoma, and here it may be stated at once that appearances were prepossessing. We saw six or seven cases of undoubted myoma, still possessing rather large abdominal and pelvic tumours which we were at liberty to examine; yet in all these cases the symptoms had been arrested, and instead of the white lip and waxen countenance that one naturally associates with this complaint when at all advanced, there was not only a healthy colour, but in some of the cases an almost too florid complexion and a history of daily hard work which had never been given up for more than a day while under treatment. On enquiry the usual hæmorrhagic history was not absent in most of these cases, but according to the statements of some of the patients themselves had been marked before the commencement of the treatment. This will be referred to again later on. All of the cases of myoma had been treated or were being treated by negative galvano-puncture. In a few this had been preceded by intra-uterine positive galvano-caustic application but the treatment was mainly by negative puncture.

To those who are unacquainted with the methods of treatment and terminology adopted it may be necessary to explain that galvanism or the "continuous" current is alone referred to in the preceding paragraph. The therapeutic effect however is different according as the positive or negative pole is applied directly to the uterus. At the positive pole acids are liberated and a directly caustic, hæmostatic and mainly local effect is produced. At the negative pole bases are liberated, the greatest chemical change takes place, and the more widely extending action is produced. It is possible that the method of application has something to do with the greater effect produced by the

use of the negative pole. In cases of myoma it is always applied by puncture, an instrument of steel being able to be used for this purpose. The positive pole, on the other hand, needs an instrument of platinum and is simply applied in the same way as a sound to the uterine cavity.

When asked what determined him in the use of either the positive or negative pole in the cases of myoma, Dr. Apostoli answered: "Formerly I used but little puncture and frequent intra-uterine positive galvano-caustic applications, but now, whenever easy, I use the negative puncture, by which the more lasting remedial effects are produced in myoma. The positive intra-uterine application remains, however, a powerful treatment for the arrest of hæmorrhage."

2. We saw a case of chronic endometritis accompanied with hæmorrhage. This had been arrested by three positive intra-uterine applications. The uterus still remained larger than normal. When positive intra-uterine applications are frequently repeated, some stenosis of the cervical canal is apt to follow. We saw one or two instances of this in some of the less recent cases. No dysmenorrhœa, however, was complained of.

3. Several cases which would here be probably classified as cases of chronic inflammatory disease of the appendages, and subdivided according as tubes or ovaries appeared to be chiefly affected, were submitted to treatment as "Perimetrites." Some of the cases in which inflammatory swelling had been marked, were treated by negative puncture as in myoma. The result was said to be generally very good, a rapid absorption of inflammatory products taking place. One case was, however, pointed out by Dr. Apostoli, in which the treatment had been followed by a fresh attack of inflammation.

4. The more chronic cases of the preceding group in which pain was the chief symptom, and the cases of ovarian prolapse, hyperæsthesia and abdominal tenderness were treated by Faradism. This was applied to the inside of the uterus or the vagina by special bi-polar sounds made for the purpose; the strength of the current being gradually pushed as high as possible. The immediate effect of this treatment was marked,

most of the patients voluntarily stating that all the pain was gone. Whether this improvement lasted for any length of time it was difficult to determine.

5. A case of reflex vomiting was treated by galvanism of the pneumo-gastrics, a moderate current being used (5 miliamperes) and applied by common handled rheophores to each side of the neck.

Most of the patients rest a short time after treatment. Those treated by negative puncture are frequently (but not invariably) operated on under anæsthesia, and remain in bed for a few hours before returning home. It is very rare, I believe, that any patient stays at the clinic longer than this. Before each negative puncture or positive intra-uterine application the vagina is washed out thoroughly with weak sublimate solution; and at the close of each operation a strip of iodoform gauze is inserted and left within the vagina until the next visit of the patient. When an anæsthetic was given the patient was carried from one room to the other by a strong and vigorous nurse who preferred to have no assistance in her work.

Much lies in instruments. While those of a purely surgical character made in Paris will but rarely bear comparison with those of English manufacture, I believe, so far as my experience goes, that in some of the Parisian batteries and their accessories one meets with a neatness, delicacy and convenience for use that we might do well to imitate if possible.

Two important features of the *materia medica* are the clay electrode and the galvanometer graduated to 250 miliamperes. The use of the former enables the operator to employ currents of much higher intensity than was formerly possible, while the galvanometer measures the exact dose of electricity given, and substitutes "mathematical precision for the vagueness of empiricism" ("*de la metrite chronique*," p. 13.) This appears to be of the utmost importance, an accurate dosage being at the foundation of any scientific treatment.

Dr. Apostoli is enthusiastic in the belief of the power and scope of electricity in the treatment of diseases of women. This leads him occasionally to treat cases by electricity that one

would think might be much more satisfactorily cured by other and more classical methods. His enthusiasm is however undoubtedly the outcome of considerable experience and success, a success which appears to be most marked in cases of myoma and metritis accompanied with hæmorrhage. Notwithstanding the difficulties of estimating this success, complicated as it may be, by occasional mistakes of diagnosis, by the possible coincidence of the menopause and by racial or other differences in disease, all of which have been duly weighed by the writer, there does not appear to be any other hypothesis than that of successful treatment which can so reasonably account for the cases of marked myoma which we saw unaccompanied by excessive loss or anæmia.

It would be altogether premature to express any decided opinion on the merits of the treatment here briefly described. There are undoubtedly some features of the Paris work that one could wish were different. The extreme specialism which confines the treatment of all cases to some form of electricity, and the comparatively isolated position of the clinique both tend to produce a spirit of prejudice either for or against the methods employed, which is inimical to clear and unbiassed judgment.

But the subject of electricity as a therapeutic agent is a large one. It is evident to all *au courant* with medical literature and progress, that within the last few years a new era has begun for this branch of surgical treatment.

The work of Dr. Apostoli in Paris has to be collated with that of Dr. Newman of New York on the Electrolysis of Stricture, and with the various papers that have recently been published from American and German as well as English sources on Electricity as applied to Obstetrics and Gynæcology.

It is a special manifestation or development of the Medical "Zeit-geist" which no one can afford to wholly disregard, and the surgeon who takes the trouble to make himself thoroughly acquainted with the methods of treatment adopted will probably find that his time and labour have not been mis-spent.

ON THE SO-CALLED MALIGNANT PUSTULE OF EXTERNAL ANTHRAX.

BY J. T. J. MORRISON, B.A., F.R.C.S.

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BACTERIAL pathogeny is the youngest and not the least promising bud on the tree of pathology. The influence of vegetable micro-organisms in morbid processes engrosses considerable attention amongst medical men, and is steadily becoming more widely acknowledged. Of the group of diseases recognised as being associated with bacteria, *anthrax* appears to be the member which has been most fully and successfully studied. Therefore a survey of the present position of our knowledge of anthrax, so far as its external variety is concerned, may prove of interest and profit as affording some insight into the views of modern pathologists.

But the subject is additionally important because of its practical bearing. For though "malignant pustule" is comparatively unknown in this district, and the nature of the local industries considerably lessens the risk of its occurrence, yet in so large a centre of population, having wide commercial relations, we are every day exposed to the liability of being confronted with cases of this malady. And, be it remembered, the disease is one which is very fatal if left to nature, whereas early diagnosis and energetic surgical treatment almost, if not quite, invariably effect a cure. As giving point to the above observation, attention may be called to the recent outbreak of anthrax amongst cattle in Poulton, Gloucestershire, attended with loss of life in the person of a man who skinned a diseased carcass.*

The writer's interest in the subject was aroused during his studentship and house-surgeoncy at Guy's Hospital, where cases from time to time present themselves from the tanneries and leather manufactories of Bermondsey. He possesses notes of

* Lancet, July 9, 1887.

twenty-six cases which were treated in Guy's Hospital between 1873 (when the disease appears to have been noted for the first time) and 1883, access to the records having been kindly accorded.

Before proceeding with the biological and clinical features of "malignant pustule," a glance at the history of its literature may not be deemed uninteresting.

I. HISTORICAL.*

Anthracid diseases in their several forms have been recognised from the earliest times, and no quarter of the globe is free from their ravages. Thus it is suggested by Bollinger that such an early record as Exodus ix. refers to anthrax; and with regard to geographical distribution, it is found in the polar regions (as Siberia and Lapland) and in the tropics (East and West Indies), as well as widely spread throughout Europe, America and Africa. In keeping with this antiquity and universality a confusing medley of terms has arisen, the external forms of the affection being variously named "*οἰδημα*," "sacer ignis," "pustula" (by the Greek and Roman veterinarians), "al Humrah" (= Persian fire), "Siberian boil," "charbon," "anthrax carbuncle," and "malignant pustule." The generic name anthrax has come to be applied to the typical disease, whether manifesting itself constitutionally, or locally in the skin; the latter variety, however, is best known in Britain as "malignant pustule," though the expression is a singularly unfortunate one, for the lesion is not malignant in the sense of having a connection with sarcoma or carcinoma, nor is it a pustule. The synonym "charbon" is less open to objection. If we may be permitted to coin a new term we would suggest "anthrax eschar" as denoting the condition more accurately.

Heusinger, in his elaborate monograph on "Milzbrand" (= anthracæmia) published at Erlangen in 1850, states that the Arabians were acquainted with the disease, and their writers

* Compiled from Bollinger's article in Ziemssen's *Medicine*, and from various English publications since 1847.

have given a precise description of it as it affected man. During the middle ages the unity of the different forms was lost sight of, and it was not until Chabert wrote his treatise "*Du Charbon*" in 1780 that the matter was put in a clear light. Fournier published his "*Observations sur les charbons malins*" in 1757; but to Chabert is chiefly due the credit of proving the similarity of maladies which had previously been regarded as distinct, and his classification is still in use. His work ran through seven editions in seven years, and was translated into Spanish and Italian.

The contagiousness of anthrax was observed and noted by Fournier, Bertin, Montfils, and other writers in the eighteenth century. Kausch, however, in 1805, whilst admitting the infection of men and animals by means of blood and flesh, maintained the theory of non-contagiousness in cattle. Delafond (1843), took much the same view with regard to ovine anthrax, which he regarded as an acute enteritis associated with blood changes; he came near the truth when he referred the chief cause to chemical conditions of the soil.

Gerlach (1845), established by experiment the contagiousness of the sheep-plague, whose identity with anthrax he also proved, and he came to the conclusion that the contagium was a very indestructible volatile body.

Heusinger (1850), promulgated the theory that the disease was a malarial neurosis. His views were shortly these—(1) a contagious poison is developed in local centres of disease and carried away in the blood; (2) the different forms in man and animals are identical; (3) the poison originates in herbivora, but all other animals may become infected. Virchow, in 1855, gave assent to the malarial theory, and expressed the opinion that the morbid principle was probably a ferment. He thus, remarkably enough, anticipated, before the true *materies morbi*—the bacillus anthracis—was made known, the latest accepted views that this organism gives rise to a fermentative action.

But the problem which had so long baffled investigators was

already solved, and during this year (1855) the solution was made known in Casper's *Vierteljahrschrift*, by the publication of Pollender's epoch-making discoveries. As early as 1849, Pollender found that the blood of cattle suffering from anthrax contained a countless mass of fine rod-like bodies, apparently of a vegetable nature. This is remarkable as the first discovery of specific organisms in morbid blood. A new epoch was thus inaugurated by the powerful impetus given to the study of the vast and but little explored field of comparative pathology. Independently of Pollender the rods were found by Brauell (1857) in the blood of men, horses, and sheep, after death from anthrax. As the result of his experiments he arrived at these conclusions :—(1) The rods were vibriones ; (2) they appeared from one to ten hours before death, but were wanting in the blood of convalescing animals ; (3) blood which did not seem to contain them, might nevertheless produce the disease ; (4) they were, therefore, of diagnostic and prognostic value, but they did not constitute the poison of anthrax, nor were they the carriers of that poison. Delafond (1860) entirely coincided with these views : he thought the particles were a kind of leptothrix, whilst others considered them to be fibrin or blood-crystals.

The next work of consequence was that of Davaine, in 1863 ; he named the rods bacteridia to distinguish them from the bacteria of putrefaction, which were motile, and held that they were the poisonous principle by which anthrax is propagated. Dr. Budd* called attention in England to an important observation made by Davaine :—In April, 1864, Dr. Raimbert attended for " malignant pustule " a carter employed on a farm where there had been an outbreak of splenic fever. Dr. Davaine found in the " pustule " a felt-work of bacteridia, and he infected rabbits with splenic fever by feeding them with the morbid material. The identity of the anthrax of animals and malignant pustule of man was thus demonstrated. Davaine estimated the number of

* *Lancet*, 1865. Dr. Budd displays a hopeful foresight in remarking—"perhaps we are on the eve of knowing, avoiding, and curing contagious scourges." A consummation devoutly to be wished !

bacteridia in a single drop of blood at about ten millions ; he was able to produce the disease with the millionth dilution of such a drop. He further alleged that bacteridia were invariably present in anthrax, and that with their disappearance the blood ceased to be infectious.

These observations served as a new point of departure in the study of bacteria, and, owing chiefly to the researches of Ehrenberg and Nägeli, supplemented by those of Cohn, considerable light has been thrown upon the life-history of vegetable parasites, particularly of the family to which the anthrax bacillus belongs, namely, Schizomycetes or Bacteria, a sub-division of the Fungi. It is to Cohn that we are indebted for the term *bacillus anthracis*, to which Davaine's older name bacteridium has everywhere given place. The value of Davaine's work, however, has been lasting, and his propositions have been substantially confirmed by trustworthy researchers, as Bollinger and Koch in Germany, Toussaint and Pasteur in France, Klein and Greenfield in England.

Our own country has been conspicuously absent from the earlier part of the narrative. Nor is this surprising, for whereas anthrax is enzoötic throughout the pastoral regions of continental Europe, Great Britain is strikingly excepted. It hence follows that our knowledge of the disease is chiefly derived from French and German writers. In England the malady appears to have been first observed about 1840 among the woolsorters at Bradford, where it has been ever since endemic, and has acquired the name of "woolsorters' disease." The history of the disease in its connection with Bradford claims a brief notice.

According to Dr. Bell, alpaca and mohair were introduced into the district as textile materials about 1837, and the appearance of the disease is popularly supposed to date from this time. Occasional suspicious deaths occurred amongst the woolsorters without attracting much notice ; but when, as sometimes happened, several men working in the same room died within a short time of one another, the sorters would become alarmed. Years of increased fatality were 1846, 1854, 1867 and 1876.

The workmen came to look upon Van mohair, the fleece of a goat inhabiting the Van district of Asia Minor, as especially dangerous; and a custom arose at certain mills for employés to determine by drawing lots which of them should work upon it. Public concern slowly—fatally so—became aroused, and after men had gone on strike in 1880, the Local Government Board directed Mr. Spear to visit Bradford and report on the local disease. The combined investigations of Mr. Spear and Dr. Greenfield have conclusively proved the malady to be genuine anthrax.*

What remains to be told of the records in Britain can be summed up in a few words. In his translation of Chelius' *System of Surgery*, published in 1847, South refers to three cases of external anthrax. They were recorded by Mr. Lawrence as having occurred in an English hair-factory, and were called "malignant pustule." Next, the late Mr. Harvey Ludlow wrote an article on the subject in 1852,† and gave an account of cases treated in St. Bartholomew's Hospital. The diagnosis of these cases, however, appears to be open to question; a clear history of infection is wanting, and the clinical histories resemble those of carbuncle or poisoned wound. Ludlow was evidently familiar with the writings of the French anthracologists. His article is valuable as showing that attention was paid to the disease in England upwards of thirty years ago.

Undoubtedly the chief credit of bringing the external anthrax prominently under the notice of the profession in this country is due to Dr. William Budd, of Bristol. He read a paper on the subject before the British Medical Association in 1862. He then speaks of the affection as having been "hitherto unnoticed" in England; but he seems to have overlooked the cases by Lawrence and Ludlow. Dr. Budd collected nine cases, eight of which proved fatal. He strongly insisted on the history of infection, and asserted that the "pustule" is always derived from animals suffering from

* Local Government Board Medical Officer's Report, 1881.

† Medical Times and Gazette,

charbon, though it is communicable from man to man. He specifies four methods of contagion :—(i.) by direct inoculation, as in the case of herdsmen ; (ii.) by means of skins or hair ; (iii.) by the agency of flies or insects ; (iv.) by eating diseased flesh.

In this same year, 1862, a case in St. Bartholomew's Hospital under the care of Mr.—now Sir James—Paget was reported. It was diagnosed as “malignant pustule.” In a prefatory note the fact is mentioned that the two largest meat markets in London—one for living the other for dead animals—were then near the Hospital.

An outbreak of anthrax in a horse-hair factory at Glasgow is described in a report to the Local Government Board by Dr. Russell in 1878.

At Guy's Hospital external anthrax has become a familiar disease. It has been known since 1873 at least, and upwards of thirty cases have been treated. The Guy's Surgeons, and particularly Mr. Davies-Colley, have rendered valuable service by repeatedly bringing the subject under the notice of the Medico-Chirurgical and other London Societies. There can be no doubt that the explanation of the comparative frequency with which this dangerous malady is observed at Guy's Hospital is to be found in the fact that large quantities of foreign fleeces, skins, and hides are imported into the adjacent district of Bermondsey for use in the extensive tanneries and leather manufactories.

(To be continued.)

REVIEWS.

REPORT ON M. PASTEUR'S TREATMENT OF HYDROPHOBIA.*

MOST of our readers will have read in the papers, lay and medical, summaries of the report of the Committee appointed to enquire into M. Pasteur's Treatment of Hydrophobia. It now lies before us, and having carefully read it we desire to make a few comments upon it, especially with reference to the article which appeared in our June number.

The report recites M. Pasteur's successive discoveries of the inoculability of the disease on rabbits, the localisation of the virus in the spinal cord, and the method of attenuation by drying the cord as described in that article. It also relates that by means of a series of inoculations of the attenuated virus in healthy animals these are protected against infection from subsequent bites. It then goes on to speak of M. Pasteur's "preventive" treatment and very justly points out the difficulty of obtaining any trustworthy statistics as to the proportion of persons bitten who should acquire the disease.

In the absence of such statistics by which to judge of the results, the Committee enquired into 90 cases and give particulars of them in an appendix. Of these, in 31 there was no satisfactory evidence that the dog was really rabid; in 45 the bites were inflicted through clothes; but in 24 the wounds were on exposed parts and were not treated "in any way likely to have prevented the action of the virus." They estimate that of these 8 would have died but for the treatment, while actually there has been no loss of life though they were treated more than a year ago. The

* Report of a Committee appointed by the Local Government Board to enquire into M. Pasteur's Treatment of Hydrophobia. London: Printed for Her Majesty's Stationery Office by Harrison and Sons, St. Martin's Lane.

report argues that of the total 2682 persons treated at least 5 per cent. should have died, whereas, according to the highest estimate, only 40 or about 1.5 per cent have ended fatally. This conclusion is followed by the examination of certain groups of cases, how related we are not told, in which the results are also shown to be much below what is stated as the expected mortality, but in these this is placed as high as 20 per cent. in dog bites and 60 per cent. in wolf bites, the mortality in each group being 1.7, 4.8, 1, and in the cases of wolf bite 18 per cent.

Finally the report does not entirely accept the view that in any case the method has been certainly followed by artificial rabies, and it concludes by recommending the destruction of ownerless dogs, taxation to keep down their number, prohibition of the importation of dogs from foreign countries in which the disease is known to be prevalent, and strict muzzling of all dogs in districts where the disease prevails in this country.

With respect to the 24 cases which are certified by the report to have been bitten by rabid dogs on exposed parts and not treated by any method likely to prevent the action of the virus, we have examined the brief notes which are not in all cases very satisfactory; for example, 62 was sucked hard at once, 63 did not bleed at all, 69 did not think the dog bit her but that she had accidentally scratched her hand, while in 73 the *post mortem* signs in the dog were "vague." But the report says nothing about any enquiries having been made to discover whether any other persons besides those treated at M. Pasteur's laboratory were bitten by these dogs, and what the results were in those cases. The report also does not attempt to meet the objection that, if the lowest estimate of 5 per cent. be accepted, from October 1885 to the end of 1886, 96 Frenchmen and Algerians would have died of hydrophobia in addition to 17 who died without inoculation, 113 in all, a number nearly *three times as great* as the highest estimate of the average mortality. We need say little as to the verdict of *not proven* in the case of the supposed artificial rabies, except that we should be glad to

have references to the cases of paralytic hydrophobia which "have been observed in men bitten by rabid animals but not treated by inoculation."

The most disappointing part of the report is the abstract of Mr. Horsley's experiments. In our article we specially directed attention, in the absence of trustworthy clinical data, and we cannot admit that such data as this report affords have supplied that want, to the results of experiments on animals with the protective method. Mr. Horsley had it in his power to give the strongest support to M. Pasteur by repeating Frisch's experiments with results such as are affirmed by Pasteur to be obtainable when properly carried out. But Mr. Horsley has contented himself with showing that animals may be protected against the results of *subsequent* bites, which although interesting is not really of practical value as the report admits that it would be impossible to carry out the prevention of rabies in dogs in this way.

This omission appears to us to be a very grave one. It was distinctly called for at this stage of the discussion, and we had a right to expect from the gentlemen composing the Committee that this point would not have been overlooked. We cordially acknowledge the careful and laborious manner in which the 90 cases were investigated, although this enquiry might have been usefully extended.

Mr. Horsley promises an early communication to one of the Scientific Societies, when we sincerely trust he will be able to give us his results in a series of experiments upon the efficacy of the protective treatment in animals *after* infection.

When it can be shown that the attack can thereby be prevented, the treatment will have in our opinion at least a *prima facie* basis of probability; until then we see no sufficient reason to alter the opinion expressed in our former article.

PATHOLOGY AND TREATMENT OF SYPHILIS.*

A TREATISE on Syphilis by one who has devoted his entire life to the study of this disease and whose experience is the result of observation and treatment of upwards of thirty thousand patients needs little additional testimony to attest its value. The first edition was written by Zeissl, senr. "to aid the student in the study of Syphilis," but in this second edition Zeissl, junr. has enlarged the work and has taken in the other venereal diseases. The articles on syphilis of the larynx, the trachea and the eye have been specially written by Professors Mauthner and von Schrötter.

Von Zeissl is an adherent to the duality doctrine of von Baresprung and recognises the existence of three venereal contagiums: gonorrhœa, soft chancre and syphilis, and to each of these a separate section of the work is devoted. More than a hundred pages are assigned to gonorrhœa, of which disease it is possible to differentiate three varieties: the serous, the epithelial or mucous, and the purulent. The author has seen urethral catarrh follow other irritants than the virus of gonorrhœa, and although he considers that the specificity of Neisser's gonococcus is not yet proven, he still believes that there is a specific gonorrhœal contagium. There is nothing new in the treatment of the disease. The subsections devoted to complications are, some of them, particularly interesting and valuable, especially would we note those on morbid alterations produced in the prostate, the seminal vesicles and Cowper's glands. The most serious complication of gonorrhœa in the female, viz., pyosalpinx, is entirely ignored. This omission looks as if the von Zeissls had not yet heard of *the* only complication which may prove fatal to the gonorrhœic woman. Pyo-salpinx has not been omitted for want of space, because in this section several pages are devoted to descriptions of the absurd details of obsolete

* Outline of the Pathology and Treatment of Syphilis and Allied Venereal Diseases. By Hermann von Zeissl, M.D. Second Edition. Revised by Maximilian von Zeissl, M.D. Authorised Edition. Translated with Notes by H. Raphael, M.D. London: H. K. Lewis. 1887.

treatments for gonorrhoeal warts (!) inserted, we may presume, to make the work as "complete" as possible.

Section 2 relates to soft chancre or chancroid, "the conception of whose contagium is an abstract one." We take exception to the assertion that "there is no special predisposition or susceptibility to the action of the chancre poison, neither is there any particular immunity or freedom from it." We believe that susceptibility or insusceptibility offer the only possible explanations of many of the anomalies met with in practice. The lines of treatment here laid down are pretty much those of our English text books—early abortion by caustic destruction, and subsequently iodoform.

Section 3, on syphilis, embraces more than two-thirds of the whole volume. The syphilitic contagion is most abundant in disorganised syphilitic papules and the sloughing initial sclerosis in hard chancre. The blood and serum of virile syphilitic persons do not seem to be totally and at all times tainted with the syphilitic element. Zeissl has never succeeded in successfully inoculating warm blooded animals with syphilitic virus. He has had repeated evidence that a patient may have a second attack of the disease, and also that infection with the viri of hard and of soft chancre may occur on the same spot at the same time. Induration of glands is the pathognomonic sign of the Hunterian sore and is of greater import than the local hardening which occurs around the primary ulcer. With regard to the succession and phases of syphilitic affections Zeissl thinks that no such divisions as were made by Ricord—viz., into primary, secondary, and tertiary—really exist. The classification he suggests is (*a*) the stage of moist papules or condylomata, and (*b*) the stage of gummatous adventitious growths. He says "the appearance of the post-gummatous node upon the skin or in any of the visceral organs almost excludes the presence of moist papules." The first group embraces the affections of the lymphatic system of the skin and its appendages, of some parts of the mucous membrane, and of the iris. The second group includes the diseases of the subcutaneous and submucous cellular

tissues of the fibrous membranes, of the bones and cartilage, of the muscles and viscera. This new division makes the work less easy for English readers to follow than would have been the case if Ricord's classification had been adopted. The sub-section on syphilitic skin diseases is exceptionally well done, as are those devoted to affections of the mucous membranes, mouth and fauces, tongue, liver, larynx, testis, nose, eye, nervous system, bones and muscles. His description of "galloping syphilis" is interesting, it impresses strongly upon the reader's mind the gravity of this most malignant form of venereal disorder.

Hereditary syphilis is discussed at length. It is curious to read that Hutchinson's "peculiar curving of the upper incisor teeth" manifests itself in "the earliest period of infancy." With this misconception in their minds, we are not surprised to learn that the Zeissls "are not inclined to attach much importance" to Hutchinson's teeth.

The principles enumerated under the heading of "Treatment" will, we think, startle the majority of English practitioners. While admitting that mercury will cause the symptoms to disappear very rapidly in the majority of cases, the author says "it is equally certain that when mercury is employed very early—as soon as the primary lesion is detected or the first eruption appears—the symptoms then present will speedily disappear; but obstinate relapses are more likely to follow than when syphilis is first allowed to spend its fury," so that the early administration of mercury as practised in this country retards rather than hastens complete recovery. "Mercury should not be used till eight or ten weeks after the first eruption has appeared."

The following is an outline of the treatment advised by Zeissl. "In patients affected only with an initial primary lesion, the treatment is purely local." "Secondaries" are treated by local measures only for the first eight weeks, and then, if the eruption has not improved, the preparations of iodine are given for another eight weeks; and finally, if the symptoms of the disease have not entirely disappeared, treatment with mercury may be

resorted to "without any fear concerning the future course of the disease." When all symptoms have disappeared treatment with iodine should be continued for twelve months. Iodine therefore, is the remedy upon which the author chiefly relies in the treatment of all phases of syphilis. He says that "given in proper quantities, in conjunction with a carefully regulated regimen, it is sufficient to cause the symptoms of syphilis to disappear, or at least to be weakened so that only a few mercurial inunctions will be necessary to complete a cure, without fear of a relapse occurring in years to come." He uses iodine in the form of tincture, or in combination with soda, potash, or iron. Despite the fact that mercury plays the minor part in Zeissl's method of treatment, he gives nevertheless an elaborate account of its modes of administration both internally and externally.

Although there is much in this volume which is opposed to our recognised pathological and therapeutical beliefs we still regard the book as a decided addition to the literature of syphilis. The description of clinical phenomena are concisely and accurately written, the graver and rarer forms of syphilis are carefully described and practical hints for the treatment of troublesome complications abound throughout the volume. Our perusal of the work has made clear to us several points in connection with these protean disorders which previously have always seemed puzzling and unsatisfactory. The volume is extremely well got up and loses nothing by being unillustrated. The translation is creditable to Dr. Raphael, as are also the notes which he has thought fit to append throughout the text.

L'AMPUTATION DU MEMBRE SUPÉRIEUR DANS
LA CONTIGUITÉ DU TRONC.*

A MONOGRAPH of nearly 400 pages devoted to a single and rarely performed operation must necessarily contain most if not all of what is known on the subject. The volume deals only with ablation of the scapula with the upper limb, or in certain cases of whatever remains of these structures after former operations or after accidental mutilations. Extirpation of the outer end or even of a great part of the clavicle is the ordinary accompaniment, but although constituting an important feature in the operation it is by no means essential to it.

We learn from a most interesting historical account of the procedure, that the first of such mutilations was the result of accident, that it occurred in the practice of Mr. Ferne, of St. Thomas's Hospital, that the patient survived, and that the case is reported by Cheselden in "The Anatomy of the Human Body" published in 1768. In 1808 an English naval surgeon, Ralph Cuming, amputated the arm with the scapula and clavicle for gunshot injury, and thirty years later a similar case occurred in the practice of one Gaetani-bey at Cairo. It was not until 1836 however that a formally planned amputation was successfully carried out, and then by an American surgeon, Dixi Crosby, in a case of tumour. His fellow countryman, Mussey, had attempted the operation shortly before but his patient died on the table. In all up to the present time 51 of these operations have been performed, and for their proper consideration the author speaks of them under three heads:—

1. Pathological amputations of the entire member (22 cases with 5 deaths);
2. Consecutive pathological amputations (16 cases with 3 deaths);
- and 3. Traumatic amputations (13 cases with 4 deaths), giving a total of 12 deaths only in the 51 cases. The

* L'Amputation du Membre Supérieur dans la Contiguité du Tronc (Amputation interscapulo-thoracique). Par Paul Berger, Chirurgien de l'Hôpital Tenon. Illustré. Paris: G. Masson. 1887.

dangers of the operation are from hæmorrhage, the entrance of air into the veins, and the resulting shock ; and after operation septicemia, "purulent infection," and exhaustion have been the common causes of death. Berger's conclusions are as follows : that this operation must be regarded favourably as a surgical procedure ; that its mortality should not exceed that of thigh amputation ; that with care, complications during and after operation may with certainty be avoided, and that the resulting disfigurement may be efficiently corrected by artificial apparatus.

Interscapulo-thoracic amputation may become necessary in certain tumours of the scapula and of the humerus, after machinery accidents or gunshot injury, and possibly also in some cases of simultaneous osteomyelitis of the humerus and scapula, of aneurisms, and of great destruction of the soft parts by gangrene, etc.

In a chapter devoted to a general consideration of the operation itself the author discusses various details adopted by other surgeons, and finally describes minutely and at length the plan carried out by himself. His operation is divided essentially into two parts : the first comprises resection of the middle (third) of the clavicle, and ligation of the subclavian artery and vein ; for which purpose an incision is made from a point over the clavicle just outside the sternomastoid muscle and carried outwards and backwards to a point over the acromio-clavicular articulation. The second part includes—1. The incision and dissection of an antero-inferior skin-flap, commencing at the middle of the former incision, running down the groove between the deltoid and pectoral muscles as far as the lower border of the latter, then transversely backwards across the inner side of the arm to the lower border of the posterior axillary fold, and from thence to terminate behind opposite the middle of the inferior angle of the scapula. Through this incision the pectoral muscles and the brachial plexus are divided. 2. The incision and dissection of a postero-superior flap, commencing at the outer end of the clavicular incision and passing backwards and downwards "by the shortest route" to join the posterior limb of the incision on

the back of the scapula. The trapezius muscle is now cut through; and 3, the remaining muscles are divided close to their attached margins, when the limb is freed from the trunk. Careful attention has to be given to the transversalis colli, the supra-scapular and the posterior scapular arteries during one or other stage of the operation.

"Thorough" is the term which must be applied to the work under consideration. The text is smartly written throughout; no objectionable reiteration, no puzzling perplexities which call for much unravelling. Berger's descriptions of operations are clear and easily understood. No surgeon should have any difficulty in putting them into execution after reading them through. His own case is extremely satisfactory and is most creditable even to so eminent a surgeon as Paul Berger. The work is freely illustrated and contains two chromo-lithographs of the operation in each of its stages. It is without doubt the most exhaustive book which has up to the present time been written on an operation which must be regarded as one of the greatest of surgery's achievements.

A TEXT BOOK OF PHARMACOLOGY, THERAPEUTICS AND MATERIA MEDICA.*

It is barely two years since we reviewed the first edition of this work. Its general scope and plan have remained unchanged and we can therefore only express our gratification that our then very favourable estimate of Dr. Brunton's volume has been confirmed by its subsequent popularity.

This edition contains 120 pages more than the second, the introduction of small type for matters of less general interest notwithstanding. The chief changes relate to curare, pathology of

* A Text Book of Pharmacology, Therapeutics and Materia Medica. By T. Lauder Brunton, M.D., D.Sc., F.R.S. Third Edition. MacMillan and Co. 1887.

tremor, antipyretics, cough, asthma, diuretics, caffeine and calomel; mostly in the way of additions. The General Index and the Section on the Eye have been carefully revised and the arrangement of the Vegetable Materia Medica has been almost entirely remodelled on Hooker's plan.

In the Preface is a brief, courteous and common sense view of the logical position of Homœopathy; such a view as one would have expected from the pen of so liberal and broadminded a Holopath as Dr. Brunton.

RETROSPECT.

HYGIENE.

BY A. BOSTOCK HILL, M.D., S.SC.C. CAMB.

THE birth-rate of the first half of the present year in the Borough of Birmingham manifested a further reduction on the rates of recent corresponding half-years, being only 32·2 against 33·7 in the first six months of 1886.

The death-rate too, has undergone a reduction on that of the first half of the previous year, viz., from 20·64 to 19·29. The present figure must be considered a highly satisfactory one, the more so as up till June the weather was of a distinctly unfavorable character; the mean temperature of these five months being only 40·5 or 2·6 below the average. The wind too, blew almost uninterruptedly from northerly and easterly points of the compass and was of that dry, searching character which we associate in this country with such winds. Much of the reduction in the death-rate is attributable to a smaller mortality from the seven principal zymotic diseases, the rate of mortality from which was identical, 1·8, in both quarters of the half-year under review; in the corresponding period of the preceding year the zymotic death-rate was 2·4. The high mortality occasioned by measles in the first half of 1886 has its counterpart to a great extent in a

heavy fatality from whooping cough in the period under notice. The other six zymotics have resulted, however, in comparatively few deaths. The most noticeable feature is the extraordinary small number of deaths from scarlet fever, only 14 having been attributed to this cause in the past six months; in the first half of 1886 the deaths from this cause were also extremely few in number. The mortality from diphtheria and the three forms of fever combined is identical with that recorded in the first half of the preceding year.

The numbers of deaths from each of the seven principal zymotics in the period under review and in the corresponding portion of last year are given in the following statement:—

	1887		1886
Whooping Cough	230	against	59
Diarrhoea	62	„	71
Measles	37	„	308
Fever	30	„	32
Diphtheria	30	„	28
Scarlet Fever	14	„	20
Smallpox	1	„	0

In a paper read by Dr. Whitelegge, Medical Officer of Health, Nottingham, before the Notts Medico-Chirurgical Society, on "*The Present Position of the Question of Disinfection*," he shows that while carbolic acid in five per cent. solution took more than twenty-four hours to kill anthrax spores freely exposed to it and a three per cent. solution took seven days, zinc chloride (five per cent.) had not killed anthrax spores at the end of a month, and even failed to destroy less resistant organisms, micrococci for example, in two days. Sulphate of iron had little effect in preventing ordinary putrefaction even. Sulphates of iron and copper, borax and boracic acid (five per cent.) were all inert after a week's observation. Chloride of lime (five per cent.) on the other hand killed the spores at the end of five days, whilst potassic permanganate in five per cent. solution was effective in twenty-four hours, although one per cent. had done nothing at the end of two days.

The most extraordinary power of destroying anthrax spores is possessed, according to Koch, by mercuric chloride, 1 part in 5,000 being sufficient to destroy the spores in ten minutes. As terebene, thymol, chloride of aluminium prove like those referred to above to be weak disinfectants though excellent deodorants, it would appear that the best and almost the only true chemical disinfectant at present known is mercuric chloride. Its drawbacks are its poisonous properties, and the fact that in albuminous liquids, or in the presence of sulphides, it forms inert precipitates.

With regard to aerial disinfectants no success attended the use of carbolic vapour, even when air at 75° C. was saturated with it for two hours. Sulphurous acid totally failed to affect dry anthrax spores, even when the proportion of gas was many times greater than it ever is in practice. With chlorine much more favourable results were obtained, but only when the air was saturated with moisture, it appearing that in closed vessels, where the loss of chlorine is small, 0·3 per cent. destroys all organisms in three hours; when, however, the humidity falls short of saturation not less than one per cent. is necessary. Bromine was found to act very similarly to chlorine, 0·2 per cent. being sufficient under the same circumstances; both cost and difficulty of manipulation are greater, however, than with chlorine.

By means of heat, however, all that has been supposed to be done by chemical disinfectants may be readily effected. Boiling for five minutes destroys even the spores of bacilli (except hay-bacillus).

Bacteria free from spores are killed by exposure to a temperature of say 220° F. for an hour and a half. Unfortunately spores of bacilli require a much higher temperature, upwards of 280° F. for three or four hours, and it is in practice found to be unsafe to work at a temperature much exceeding 255° F., or else the articles are injured in colour, strength, and texture. Disinfection by steam is now rapidly superseding the hot-air processes, over which it has many advantages, such as more

rapid penetration of bulky articles like pillows, more rapid and complete destruction of all organisms, and, upon the whole, less injury to fabrics. It is found that no organisms, even spores of bacilli, resist moist heat at a temperature of 100° C. for more than a few minutes.

Erysipelas after Vaccination.—As a preface to a report by Dr. Airy on some cases of erysipelas after vaccination occurring at Sudbury, in Suffolk, Dr. Buchanan makes an interesting comparison of the relative number of deaths from septic diseases registered as having followed vaccination, and registered as being from septic diseases without mention of vaccination. Taking for each class the facts for the latest period for which comparable official data are obtainable, the number of infants receiving during 1883 in England and Wales scratches or pricks in the process of vaccination was 763,192. The operation was followed by ill consequences in certain of these children, and 51 of them died, all or practically all from septic disease. The estimated number of children in 1883 under one year of age was between 760,000 and 765,000. By one mischance or another, but apart from any recorded connection with vaccination, a certain number of these children were attacked with septic disease, and 724 of them died before completing one year of age.

Poisoning by the Roes of Herrings.—M. Bertin gives an account in the *France Médicale* of the case of a man poisoned by eating three hard-roed herrings. The symptoms were oppression, burning sensation in the œsophagus and in the stomach, vomiting, sanguinolent diarrhœa, and very violent abdominal pains, and they lasted about forty-eight hours. An enquiry proved that, the eating of the hard-roed herrings could alone account for the illness.

The Sanitary Medical Service as a career.—Dr. Sykes read a paper on the above topic before the "Society of Medical men qualified in Sanitary Science." He showed that only 245 medical men, or less than one per cent. of the total number of registered practitioners are qualified in sanitary science, whilst out of 1,295 Medical Officers of Health only 38 hold Sanitary

Science Certificates, so that only about one-sixth of the total number qualified in sanitary science have sanitary appointments. Dr. Sykes contended that the peculiar hardships that most Medical Officers of Health, in contradistinction to other officers of a local authority, experience in the pursuit of their duties may be summed up as follows:—

- 1.—Indeterminate status.
- 2.—Insecurity of tenure of office.
- 3.—Inadequate remuneration, with difficulty to supplement it.

In regard to the first point Dr. Sykes maintained that the health officer should be chief of the sanitary service, whilst he did not see why he should be treated worse than other officers in respect of his tenure of office. He showed also that of the responsible officers of a local board the health officer is almost invariably the worst paid, and quoted from some figures obtained by Dr. Armstrong of Newcastle, who states that in the sixteen extra-metropolitan cities and boroughs of England having populations of 100,000 and upwards, the average yearly salary of medical officers of health who give the whole of their time to public duty is £553, whilst that of the Town Clerk is £1,156, that of the Clerk to the Magistrates £850, that of the Treasurer £710, and that of the Borough Engineer, Surveyor, etc., £640.

The Infectiousness of Pneumonia.—At a recent monthly meeting of the North-Western Association of Medical Officers of Health, a paper was read by Dr. Niven (Oldham) on the above subject. He said that evidence was accumulating that pneumonia was ordinarily a febrile disease, having specific contagion communicated to the patient by means of germs. Two distinct micro-organisms had recently been discovered in the bodies of infected persons, and these had been isolated and cultivated, and on the products of the cultivation being inoculated in rabbits and mice a malady similar to the human disease had been caused.

A high Death-rate the sure heritage of a high Birth-rate.—This is the main argument of a very able paper by Dr. Rigby

on the causes of the high death-rate in Preston. Dr. Rigby compiles statistics showing conclusively that the infant mortality is so heavy as to entirely account for the high death-rate of Preston.

A paper was read before the May meeting of the Society of Medical Officers of Health by Mr. Shirley Murphy, on *The recent prevalence of Winter Diarrhæa*. His own opportunity, he said, of studying its etiology was confined to a public institution, where, in about 48 hours, 76 per cent. of the patients and two of the nurses were attacked, the rest of the staff escaping. The disease, he argued, was not the result of climatic conditions, because it attacked some institutions severely, whilst it left others in the immediate neighbourhood completely free. He was compelled to conclude that some article of food must be the cause of the outbreak, and by a consideration of the incidence of attack upon patients, medical officers, nurses, and servants respectively he was enabled to eliminate every article but butter. In an interesting discussion which followed, Dr. A. Bostock Hill suggested that the cause of the mischief was probably not pure butter but butterine.

Spurious Olive Oil.—Mr. A. P. Inglis, British Consul at Leghorn, states in his last report that of late it has been the practice to export cotton seed oil pure and simple, and to brand the cases "olive oil" of superior quality. As, however, cotton seed oil is to be had cheaper in England than in Italy things have culminated in the exportation of the empty flasks, packed in the usual cases, to London, there to be filled with cotton-seed oil, and to be palmed off upon the public as finest "olive oil."

DISEASES OF THE THROAT AND NOSE.

BY CHRISTOPHER LEWIS, M.D.

The Journal of Laryngology and Rhinology.—Under the conjoint editorship of Drs. Morell MacKenzie and Morris Wolfenden, a new journal has been started which promises to supply a long felt want among those who are interested in laryngological work. The periodical contains full abstracts from all the current literature on the subject, and the editors are supported by many of the well known laryngologists of the day. One good feature in the journal is the appearance occasionally of original articles, we hope that these articles will be continued and in future maintain the high standard of those which have already appeared. We wish the journal every success.

Note on a frequent cause of Nasal Hæmorrhage.—In the experience of Dr. Beverley Robinson (Medical News) the ulcerations in atrophic rhinitis had been a most frequent cause of hæmorrhage. He had found himself unable to detach the crusts from these ulcerations either by the use of douches, or sprays, as well as by the employment of ointments. In the course of two or three days the patient is able to blow out the crusts. No ointment acts so well as the ammoniated mercury ointment of one half or full strength made up with vasaline. In applying plugs in the case of hæmorrhage he had found nothing so useful, especially in children, as Steele's flexible probe. He had found the so-called sheet sponge very useful as a plug. This may be cut in long strips and pushed through the nose until the bleeding is controlled.

The Laryngitis of Typhoid Fever.—Dr. Paul Koch of Luxembourg, sums up the result of his studies and personal observations as follows:—

- 1.—There is a true laryngo-typhus. It always coincides with the acute period of the same malady.
- 2.—If the symptoms of laryngeal stenosis became manifest during the period of convalescence from typhoid fever, they are

the expression of the perichondritis, which in general is manifested in acute maladies of long duration.

3.—Operation is indicated as soon as the symptoms of laryngeal stenosis become disquieting.

4.—Tracheotomy should be performed low down so as to avoid the cricoid region.

5.—It requires patience to abandon these perilaryngites and perichondrites to their natural course, which is very long, without wishing to hasten definitive recovery.

6.—If after definitive recovery the patient cannot dispense with the canula, there is plenty of time to employ mechanical treatment by the two routes open; and should this not succeed, to practice a resection of a portion of the larynx.

The same author reports a case of laryngeal stricture consecutive to typhoid fever cured nine years later by tracheotomy, and incandescent destruction of an interfering fold of laryngeal mucous membrane.—(Am. Journal of Medical Sciences.)

Peroxide of Hydrogen in Whooping Cough.—Dr. B. W. Richardson (Asclepiad, No. 13) has treated nine cases of whooping cough, six males and three females, with peroxide of hydrogen exclusively; giving a fluid drachm of the ten volume solution five or six times daily. He has not seen equally good results from any other treatment except change of air. He uses the following formula:—

Hydrogen Peroxide (10 vols. strength)	. 3vi.
Glycerine, pure	. 3iv.
Water distilled	. to 3ij. Mix.

To make a solution of three fluid ounces, of which let half a fluid ounce be taken in a wineglass of water as directed.

When there is stridulous spasm, he substitutes ozonic ether 3ij for the solution of the peroxide or adds it to the mixture.

Epileptiform Seizures from post nasal Polypus.—Dr Richardson, in the Asclepiad, No. 13, reports the following case. A married lady, aged 34, not at all hysterical, who had been unsuccessfully treated for epilepsy, stated that the cause of the attacks seemed to be in the back of the throat, and to be produced by something that dropped into the larynx, as when

one "swallows the wrong way." Nothing abnormal was found in the larynx, but while the mirror was in the throat a large drop of fluid fell from the post-nasal cavity. Examination being thus directed to the nose a polyp was discovered, and removed entire with forceps. It was a large fluid gelatinous mass the size of a large walnut. When gently pressed drops of gelatinous fluid exuded. For eight years there has been no recurrence of the growth or of the epileptiform seizures.

The Deformity termed "Pug Nose" and its Correction by a Simple Operation.—Dr. Roe has an interesting article in the Medical Record of June 4th, in which those individuals who sport a snub or pug nose may derive some comfort, even we believe the "Old Topers." There are according to the writer of this article, three conditions that may occur during the development of the nose that give this appearance. They are: (1) Excessive development of the ala and cartilaginous portions on the end of the nose; (2) a lack of sufficient development or a sunken or flattened condition of the base and bridge of the nose, while the end of the nose may be but normally developed; (3) the combination to a greater or less degree of the conditions just mentioned. This last condition is the one most frequently found. The writer has operated upon five cases with satisfactory results. The operation is performed as follows: We first deaden the sensibility of the interior of the nose by cocaine, and then brightly illuminate the part. The end of the nose is turned upward and backward and held with a retractor, then sufficient of the superfluous tissue is removed or dissected out, to allow the nose to conform to the shape that we desire. Great care must, however, be exercised not to remove too much tissue and also not to cut through into the skin, lest we may have afterward a scar or dent in the external surface of the nose. In some cases no after treatment is required, but in others it is advisable to mould a saddle or splint as it were to the top of the nose, so as to make it while healing assume the shape we wish to obtain. For a more detailed account the article had better be consulted.

Cyst of the Nasal Mucous Membrane.—Schaefer (Monats f. Ohrenheil, 1886) reports a cyst the size of a walnut involving the anterior portion of the lower right turbinated body and the floor of the nose of a woman fifty-four years of age. It was opened by a large incision made upward behind the upper lip, and discharged a tablespoonful of albuminous fluid with a few flakes of pus. The cavity was cauterized with chromic acid and a drainage tube inserted. Contraction of the cavity necessitated removal of the tube the next day. Recovery was complete in eight days.

Atrophic Rhinitis.—Dr. Noquet, of Lille, in some considerations of this theme, claims to cure the disease, in many instances, even to regeneration of the atrophied tissues. He uses Weber's douche twice a day with a tablespoonful of potassium chlorate to the litre of tepid water, followed by pulverization of a solution composed of chloral hydrate 1 part, boric acid 12, glycerine 20, distilled cherry laurel water 40, and distilled water 400 parts. In the middle of the day an additional pulverization is practised with water aromatized with antiseptic vinegar in the proportion of one to fifty. After eight days carbolic acid replaces the potassium chloride in the proportion of about two grammes to the litre. In addition pencillings are made by the attendant with a solution of zinc chloride, rendered liquid by a small quantity of chloro-hydric acid.

The Galvano Cautery in the Treatment of Hypertrophied Tonsils.—Dr. Knight in a paper read before the American Laryngological Association, referred to the objections to the cutting operation. The principal of these is the danger of hæmorrhage. There are two methods of using this galvano-cautery, one is by puncture and the other by the snare. The former is much the slower. Not more than three punctures should be made at each sitting. The number of sittings required varies from five to ten. The latter method with the snare is much the quicker. The current should be used intermittently and contraction should only be made during the

passage of the current. Dr. Knight advocates this plan of removal when there is danger of hæmorrhage, and he was almost disposed to say that the galvano-cautery should be used in all cases in adults.

The Local Treatment of Laryngeal Phthisis.—An able article by Prof. Massie of Naples, appears in the Journal of Laryngology for May, and the writer's views may be summarised as follows:—

1.—We are still in want of some remedy or remedies to effect the cure of laryngeal phthisis.

2.—Notwithstanding this want, the local (palliative) treatment of the disease is incumbent upon every physician.

3.—Many of the cases quoted by various writers are of an extremely hypothetical nature, inasmuch as they have not been a sufficient time under observation.

4.—Cocain, iodoform, iodol and sublimate are perhaps the best of all local remedies. Lactic acid even by submucous injection does not appear to have led to favourable results.

THERAPEUTICS.

BY ARTHUR FOXWELL, B.A., M.B.

The Neurotic Treatment of Summer Diarrhœa.—Dr. Alex. Harkin, in the Boston Medical and Surgical Journal for July 14th, 1887, says Claude Bernard referred the stage of collapse in cholera to great irritation of the sympathetic system, and that, acting on this theory, he treats summer diarrhœa by blistering with liq. epispast. over the sheath of the vagus in the neck, the vagus being the antagonist and controller of the abdominal sympathetic. He goes on as follows:—"With the almost uniform result, that as soon as its powerful irritation is experienced, all vomiting, purging, and cramps immediately cease, natural heat returns to the body, the patient, be he child or adult, generally falls over asleep, and finally awakes, in a few hours, quite free from danger. I apply the fluid with a camel's hair pencil from behind the ear, as far as the angle of the lower

jaw, over a space three inches in length and one in breadth ; a blister rises in five hours, which I dress with cotton wool."

Terebene is the optically inactive product of the action of strong sulphuric acid upon turpentine. Dr. Tidy asserts that only the impure samples exercise any physiological action.—Dr. Davenport in Boston Medical and Surgical Journal.

Cocaine.—The great instability of this drug is now well known, simple contact of the free alkaloid with water being sufficient to decompose it. Atropine is found to be similarly decomposed, though not so readily. Cocaine hydro-chlorate should be required to be absolutely neutral, volatilize completely, dissolve clear and colourless in water, give a colourless solution with strong sulphuric acid, not reduce potassium permanganate immediately, and when heated with an excess, give off no odour of bitter almonds. Ecgomine, a decomposition product of cocaine, is devoid of anæsthetic properties, but acts as a tetanising poison.—Ibid.

Pulque and Mescal.—From the aloe or maguey plant, some thirty varieties of which grow wild throughout Mexico, besides Pulque or Mexican beer, and Mescal, the chief spirit of the country (a distillation resembling a coarse quality of gin and very intoxicating in its character), there is produced a fine quality of brandy, known as Tequila, which is highly valued on account of its purity and strength. The unfermented juice or sap direct from the plant is called Hydromel, or honey juice. After tapping, a single plant will yield, upon an average, over a gallon of juice a day, or about one hundred and twenty gallons during the three following months, before it dies.—Ibid.

Japanese Napkins.—These paper napkins are strongly recommended instead of linen ones, &c., for the purpose of absorbing all offensive discharges. They are clean and attractive and might have instructions printed on them. It is also suggested that they should be used as table napkins in hotels and restaurants, as they would insure absolute cleanliness, are cheaper than linen ones and might contain advertisements.—Technics, May 3rd, 1887.

Carbolic Saponate is the name given to a new potassium soap, containing from 5 to 10 p.c. of carbolic acid. It is especially recommended for washing the hands after operations, or after contact with infectious patients. It is said to render the skin smooth and soft, and to be entirely devoid of irritating properties, though in this last particular Dr. Stroganoff, of Odessa, does not quite agree.—*Technics*, May 3rd, 1887.

New Books, etc., Received.

- Meteorological Observations at Davos-blatz (Hotel Belvedere).* April, 1886, March, 1887.
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ORIGINAL COMMUNICATIONS.

INGLEBY LECTURE, 1887.

ON THE SURGICAL TREATMENT OF SOME
DISEASES OF THE LOWER BOWEL.

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HONOURED by the choice of the Council of Queen's College, I to-day occupy the distinguished post of Ingleby Lecturer for the present year. I feel most deeply the fact that posts of honour are also posts of responsibility, and while in my case the honour is increased, when I call to mind the distinguished gentlemen who have in former years delivered the Ingleby Lectures, most assuredly, the responsibility is increased in at least an equal ratio. I cannot but feel that my knowledge and experience in ailments peculiar to women are quite as much less than theirs as is the capacity to address with either oratorical eloquence or incisive phraseology a meeting of my professional brethren.

The *title* of the lecture—as well as the gratitude we feel for the endowment claim at least a passing notice.

In the year 1876, Mr. Wragge disposed of money left to him by Mr. Ingleby for furtherance of charitable and educational

purposes. The Ingleby Lecture endowment was not the only benefaction for the good of our profession. A large sum of money was handed to the General Hospital, for the purpose of building the Ingleby Home for Nurses at that Institution ; and another large amount was devoted to the endowment of the Medical Institute. The grant made to the Queen's College was partly devoted to the establishment of an Ingleby Prize, and the remainder to the endowment of the Ingleby Professorship, for the purpose of ensuring the delivery each year of one or more lectures on subjects connected with diseases of women and children.

The special character of the subject of these lectures is due to the fact that Dr. Ingleby, the father of our benefactor, was for many years, with reciprocal honor, Professor of Midwifery in this College, and was at the same time the leading accoucheur of this district. Dr. Ingleby was in his day a man of great learning, of great fame in his speciality, a well reputed writer on obstetric subjects, and a gentleman who gained, to an unusual degree, the confidence and esteem of the public. The endowment, therefore, not only embodies the name of the liberal benefactor, but also enshrines the name and reputation of our former learned professor, Dr. Ingleby.

In the endeavour to bring under your notice, from my practice and experience as a general surgeon, ailments in some degree specially, though not solely, affecting women, I have ventured to choose for the subject of my lectures, disorders affecting the lower bowel, since such affections are perhaps more common among women than among men, and are accompanied in the former by complications, to which men, from their physical organization, are less prone.

There are physical and psychical and sentimental reasons for this. Among the former may be instanced the periodical recurrence of menstruation. This flow during a great portion of a woman's life causes a frequently recurring and somewhat persistent congestion of the uterine circulation. This congestion is not, however, *limited* to the uterine circulation ; it

probably in health, and certainly in disease, affects the neighbouring viscera, the rectum and the bladder; and during the catamenial flow, it is by no means uncommon in health, for these parts to exhibit functional irritability, shown by frequent micturition and by diarrhoea. In cases of disease it is known to all, that this increased area of special congestion is most marked. Women with inflammation of the mucous membrane of the bladder, are, at the catamenial period, liable to discharges of blood in the urine. In one case that was under my notice, some years ago, this passing of blood in the urine was the only indication of the catamenial flow, and recurred with regular periodicity.

The rectum too sympathises, and it is by no means uncommon for women suffering from hæmorrhoidal affections, whether in the form of distinct piles, or of congested prolapsed mucous membrane, to find these conditions markedly aggravated at the periodic visitation—in some cases under my notice hæmorrhage from the rectum only occurring at these times. This sympathy in the uterine congestion, is only what we might expect from the anatomical conditions of the parts, the uterine and many of the rectal vessels coming from the internal iliac, and the veins completing the circulation, all uniting in the inferior mesenteric vein. The lymphatics of the uterus, rectum, and vagina for the most part join the glands lying in the hollow of the sacrum, while others join the internal iliac glands, which ultimately enter the lumbar glands. The nerves too are in the main branches of the inferior hypogastric plexus of the sympathetic, and the third and fourth sacral nerves; the ovaries, like their analogues, the testes in a man, have of course a distinctly different nervous and vascular supply; and some of the ovarian nerves and vessels send branches to the uterus—these, however, are comparatively very limited in number and size.

The development of the pelvic organs is a subject too abstruse for complete elucidation to-day, and is unsuited to a practical paper. It shows that uterus, vagina, bladder, and

rectum are all closely associated in early foetal life. This very brief anatomical disquisition would lead us to expect what in practice we find, that diseases of the pelvic viscera common to the two sexes present in women conditions similar in many respects to those in men, but differing widely in other respects, owing to the special sexual relation of the woman.

The facts of the nervous supply of the pelvic viscera being so closely connected, and of the peculiar nerve mobility or tension in women, prepare us also to find that diseases of one organ often affect other neighbouring and even distant organs. Indeed, every day experience tells us that uterine disease or disorder in women is often referred by them to derangements of the bladder or the rectum, and *vice versa* disorders or diseases of the rectum or bladder, are by them associated with sexual disorders or diseases.

There is probably no surgeon present who has not cured what has been considered long standing womb troubles, by treating a painful fissure of the anus, or a pile, or an urethral caruncle.

The natural delicacy of women too frequently induces them to suffer for years from affections of the rectum or anus without divulging their condition, and it is a singular fact that many women, who tolerate uterine examination, to which the necessities of parturition has accustomed the sex, without any false delicacy, nevertheless exhibit a marked repugnance to the all important examination and investigation of the anus and lower bowel. These considerations may perhaps justify me in bringing before you to-day, conditions in many respects common to the two sexes, but fulfilling I think the conditions of the Ingleby endowment as having special relation to the female sex.

Malignant disease of the rectum is a disease which, common to both sexes, is more frequent in women than in men, possibly from the mobility of the uterus on the rectum, and compressure in pregnancy and parturition. The disease is most frequently found in one of two situations, either at the anus, at the muco-cutaneous junction, where it is of the epitheliomatous type, or four or more inches up the rectum, usually within reach of the index finger,

where the form of disease is often scirrhus. In either position it proceeds with more or less rapidity to undermine the health by the ingress of the cancerous cachexia, and by the exhaustion due to pain and to profuse discharge. The rectal cancer encroaches on the lumen of the gut by infiltration into its walls, or by proliferating growths from the ulcerating surface. In these cases gradually increasing, narrowing of the passage is terminated by complete obstruction with its accompanying miseries and by death. The surgical treatment of this condition has advanced greatly during the last few years.

In some cases, especially in anal cancer, the disease can be removed by dissection. This operation is more feasible in women than in men. In males, the disease progressing by continuity of tissue, rapidly invades the integumental and subcutaneous tissues between the rectum and bladder, and very quickly vital parts that cannot be removed with safety to life become infiltrated. In women the anus and rectum are separated from the urethra and bladder by the vagina, and in any operative procedure the wall of the vagina, if infiltrated, might readily be removed. This would of course convert rectum and vagina into a kind of cloaca, a condition sufficiently miserable, but still preferable to the presence of a painful and spreading disease.

In operating for the removal of malignant disease of the anus or rectum one is a little apt to leave out of our calculation the existence of glandular complications, *this*, because the glands mainly affected lie at a distance, some out of sight, and some of them beyond the reach of the finger. I think however we may safely assume from our experience of the disease in other parts that no malignant disease can advance to the stage of ulceration without the accompaniment of considerable glandular implication.

There is an almost unanimous opinion on the part of leading surgeons, there is almost a complete consent on this point, that it is useless to remove by operative procedure any malignant disease unless it can be *completely removed, and unless the enlarged glands dependent upon it can also be completely*

removed. In breast cancer it is my habit in every case to open up the axilla, to search for affected glands that may be imperceptible through the skin. It is also my custom to unhesitatingly condemn operation in those cases in which I find enlarged glands in situations where they cannot be removed.

I wish very strongly to direct your attention to similar considerations with regard to rectal cancer. Is it conceivable that a cancerous growth in the walls of the intestine shall have existed for a long time, shall have ulcerated, proliferated, perhaps sloughed and freely discharged, without having conveyed through the absorbents, malignant cells which may have again been transferred to more distant lymphatics?

We know how certainly and how rapidly, in more exposed parts, this glandular infection proceeds, directly skin is implicated by the progress of malignant disease. Is it not probable, is it not almost certain that the infection of the skin of the bowel, to wit the mucous membrane, will have been very rapidly associated with infiltrated glands, centres of malignant infection, which would remain even if the diseased intestine were itself capable of complete removal? *In malignant disease there must be no piecemeal surgery—all or none, complete removal, or complete abstinence from attempt at removal.*

In cancer of the rectum in its upper part there will rarely be the opportunity of enterectomy, since the disease will never be able to be detected until it has passed out of the class of removable growths. I say never; the exception proves the rule. I suppose no living surgeon will ever have the good fortune of my friend and colleague, Professor May, who had the opportunity of removing a malignant growth of the colon which had been detected and diagnosed during an operation for ovariectomy. The operation and the operator deserved a better fate than attended this unique case.

But although the disease I have been talking of rarely affords the opportunity of complete removal, a great deal can be done to prolong life and to mitigate the suffering of the patient. Until the last few years the operation of colotomy

was never employed except for the relief of *complete obstruction*, in cases in which it was performed it was very frequently employed too late and only served to hasten the end of a patient exhausted by prolonged pain and discharge, and in extremity from constant tenesmus and vomiting; we now recommend and adopt this operation early in the disease, believing that it considerably lessens the suffering of the patient and protracts life, by *resting* the diseased part from its functional use. The functional use of the rectum is to convey *fæces* to the outside of the body, if the surface of this tube be abraded, ulcerated, thickened, and the calibre of the tube narrowed, it is evident that this passage of *fæces* will, firstly be attended with pain and hæmorrhage, and secondly by irritation and consequent rapid progress of the cancerous deposit. By the operation of colotomy the passage of the *fæces* is diverted, the tube contracts, and although the disease remains, it is not aggravated into rapid growth, and remains more or less quiescent and in abeyance.

Amussat's operation of colotomy is one requiring care, when performed in the cases I have described, for there is rather more difficulty in finding the colon when empty than when, distended with *fæces*, it bulges into the wound, as in cases where the operation is performed for obstruction. The empty condition of the bowel, with its attendant disabilities, may be remedied by inflating through the anus, which can be best done by means of an ingenious instrument devised by Mr. Lund. There are five important practical points in this operation which have impressed me during a rather large personal experience:—

- 1.—Measure and mark with aniline pencil the line in which the bowel should lie: this is a vertical line directly midway between the anterior and posterior spinous processes of the ileum. The line of the descending colon in the left loin is half an inch posterior to this vertical line.

- 2.—If possible, draw up the intestine to the surface, and fix it there by sutures traversing the wall of the gut, and not entering the cavity, leaving the intestine unopened for three or four days.

3.—Place two guiding sutures through the wall of the intestine, still not opening its calibre, to direct you to the exact spot to open the gut after it has become adherent in its new position. This may *seem* unnecessary, it *is* most important, though I have an idea that it is novel; I have never seen its employment directed in any text book or in any description of the operation.

You will be astonished at the rapid proliferation and thickening of the wall of the gut when exposed on the surface of the body. I think anyone would expect that a puncture of the coats of the intestine to say one-eighth of an inch should penetrate the cavity. In many cases the whole of the blade of a tenotomy knife is covered before the gut is opened, and it is in this condition that the surgeon rejoices in having a safe direction for his incision as afforded by the "guiding sutures."

4.—Draw out the intestine as far as possible, so that the mesenteric attachment shall form a spur directing the faecal matter through the artificial anus, and preventing it passing down the continuents of the intestine. You will remember Dupuytren's enterotome, an instrument devised for the removal of the spur of the intestine in artificial anus, which spur prevented the closure of the abnormal opening. Now in Amussat's colotomy, this spur, with its consequences, is just what we want to secure, and it is so secured by drawing the gut as much as possible through the wound.

Lastly, put drainage tubes down beside the gut to the bottom of the wound. *Drainage is the main spring of practical surgery.*

I am enthusiastic about it, because I was, I believe, the first surgeon, certainly one of the first surgeons who employed the ordinary caoutchouc drainage tube in England. I learnt the use of the drainage tube from Chassaignac in Paris. In no condition is its utility more marked than in this operation. You have a deep wound with possibly, probably, nay necessarily, some sanguineous or serous oozing. By suturing the intestine round the edges of the wound you more or less close the external aperture. This closure being more completely effected by the

intestine so attached becoming distended with flatus and closely accommodating itself to the edges of the wound. At the bottom of the wound you have the peritoneum, a thin membrane separating you from the abdominal cavity, into which cavity the drainage of blood will be likely to lead to a fatal result. Indeed, I doubt whether you usually have an intact peritoneum to keep out this effused serum and blood.

I am sure in many instances that the gut is not reached by the separation of the layers of the meso-colon, or by hitting a part not covered by peritoneum.

I think most operators will allow that when seen and when caught the colon has presented to their anxious or at least eager gaze the bright and shining surface of visceral peritoneum, showing that it is the abdominal surface that is presenting. How important is it then to employ two or more good drainage tubes passed to the very bottom of the wound in the condition mentioned, viz.—a dangerous cavity, at the bottom the peritoneum; an oozing deep wound, a closed surface wound. I am sure I have traced more than one death to neglect of drainage.

I do not describe iliac colotomy, I have never done it. Statistics show it to be more fatal than lumbar colotomy, and it seems to me to possess no practical advantage which can out-balance its increased danger.

The most common diseases of the rectum are Fistula, Fissure, and Hæmorrhoids. My own experience is that fistula in ano is less common in women than in men. It is however frequent enough to require mention. The causes in either sex are well known, and also its varieties. I believe that the external complete and the external incomplete are most common, and this is what we should expect. It must be very rare that an internal incomplete fistula can exist as such very long. The presence of matter opening into the rectum and lying between it and the skin in the loose cellular tissue of the ischio-rectal fossa would assuredly soon lead to an abscess opening externally, and rendering the fistula complete. As is now generally known, the

internal orifice of a fistula very rarely opens far up the rectum, it is usually just within the internal sphincter and within an inch or less of the anus. It is not uncommon for a diverticulum to pass upwards by the side of the gut for an inch or more ; this will always heal when the sphincter is divided.

The only difficulty one finds in operating is the passing of a probe or director through the internal orifice of the fistula. This is much more easily done if the sphincter is not previously stimulated to contraction. A very common mode of investigation is to pass the finger in the anus and then to endeavour to pass a probe from the external orifice of the fistula on to the finger. This is a mistake. By passing the finger within the sphincter this muscle is stimulated to contract, and very often the track of the fistula becomes twisted or "kinked," so that the passage of the probe is impossible. The better plan is to try and gently pass a probe director from the external orifice before inserting the finger. By this manoeuvre you are much more likely to succeed. If you fail, the finger can then be passed ; if you still fail, feel for a soft depressed spot, which indicates the inner opening, and try to "persuade" your director through it. Still failing, as will occasionally happen, the director must be forcibly pressed through the thinned wall of the gut, and then the point everted through the anus and the fistula divided. There is usually little bleeding, easily arrested by oiled lint. The dressing is applied and supported by a T bandage, and a morphia suppository introduced. The bowels should be opened by enema on the fourth day, the patient being kept in bed until this time.

There are two conditions of fistula which give rise to special anxiety—the one where fistula occurs in cases of phthisis, a very common complication of this disease. If the fistula were giving no trouble it should be left alone, but if causing pain or attended with profuse discharge, an operation for its cure is a less evil than the continuance of the disorder. I have frequently operated under such conditions, I have never had reason to regret it, but I have observed in these cases a very great

tendency in the wound to become languid on its healing, requiring stimulating applications. Another severe complication in fistula is where two or more exist, and these on opposite sides of the bowel. A free division is liable to eventuate in disability of the sphincter to fulfil its function, entailing a condition of incontinence of fæces, very distressing to a patient.

I had two or three years ago a severe case of this under my care. Nothing but a free division of the fistulæ on opposite sides of the rectum seemed likely to do good. I operated in this way. The result was satisfactory though the chasm after the operation was somewhat alarming. The patient recovered with perfect control of his sphincter. Had I again to treat such a case, I should endeavour at all events on one side to dissect out the track, and bring the edges together with deep quilled and superficial interrupted or continued sutures.

Fissure or ulcer of anus is a very distressing and a very common ailment. It is, in my experience, more common in women than in men, and in them giving rise to most obscure and severe uterine and vesical as well as anal discomforts.

It has fallen to my lot, and must be a common experience of specialists in women's diseases, to find women who have for years suffered from what they considered uterine disease, who are really victims of this trying but readily curable disorder. The fissure, which is usually a small ulcer, is situated just within the sphincter, its outer edge being often obscured by a small pile. In my experience, the ulcer is most commonly situated at the posterior part of the anal aperture—it is caused probably by distention in passing large and solid fæces. The pain is said to be caused by its situation over the fibres of the sphincter, which muscle is subjected to irregular contraction or cramp each time the fissure is opened in the act of defæcation, the cramp lasting sometimes for hours. I have often felt surprised why in some cases these little ulcers cause inordinate distress, while in other cases they seem to cause very little pain or even discomfort.

To some extent this may be explained by the different susceptibilities of patients, but I think not completely so. I am inclined to believe that in some cases the ulcer implicates directly a branch of nerve, while in those cases attended with but little pain no such complication exists. It is hardly necessary to mention that the pathognomic symptom is pain, not *at*, but lasting for a time, varying from a few minutes to a few hours, *after* the act of defæcation, varying also from a sense of discomfort to an intolerable degree of suffering, rendering life a misery. Very frequently patients thus afflicted and associating their pain with the action of the bowels, somewhat naturally limit the action as much as possible. This of course is injurious and increases their troubles: if the relief of the bowels occurred daily with soft motions the ulcer might heal, but the enforced constipation induces the passage of large hard stools, which, on each occasion open up the ulcer.

In some cases, instead of pain, intense itching or pruritus ani is the sole indication; a condition if possible, more unendurable even than pain. All these distressing symptoms may be temporarily relieved by the application of 10 per cent. solution of cocain. The relief from this is, of course only temporary, but under its use the spasm of the sphincter soon passes off. By the application of lunar caustic, or of syrup of chloral, with attention to the bowels; inducing a daily soft action of the bowels by a dose of milk of sulphur each night, or of the popular cascara in its form of cascara cordial, a cure *may* be effected.

In my experience this is not common, and the operation of incising the superficial fibres of the sphincter under the fissure is required. This small operation is almost always successful. A similar result attends forcible distension of the sphincter, which is, however, a more trying and less elegant way of dividing these fibres of the sphincter, the cramp in which is the cause of the distressing symptoms associated with this malady.

Hæmorrhoids or piles are another very common and very trying disorder of the lower bowel. In a greater or less

degree few persons over fifty are entirely free from this disorder, very few without a tendency to it. The sedentary habits of many, the custom of late dining and the taking of alcoholic drinks, and the carelessness with regard to constipation, are a few of many causes predisposing to the affection.

As is well known to most of my audience, the veins, the varicose condition of which leads to or in part constitutes piles, have a direct connection with the liver. These veins, moreover, more readily congest or become turgid in connection with a similar turgid state of the liver, because they are unprovided with valves which in other veins prevent the back flow of the blood. The hæmorrhoidal veins may, therefore, be considered in the light of an indicator of the condition of the liver, and frequently, when the condition we are considering is attended with hæmorrhage, they act as an overflow pipe, or a kind of safety valve to this important organ.

We all recognise the fact that a life of indolence and indulgence is likely to cause congestion of the liver, and when in addition to this cause of fulness of the venous system surrounding the lower bowel, we have local causes, such as constant sitting, and that on soft cushioned seats; and constipated bowels only relieved by aid of straining more or less violent, it is not wonderful that we get a congested state of the hæmorrhoidal veins. This is a condition that is remediable, it is precedent and premonitory of the disease called piles. These congested veins being still exposed to the conditions which caused them, become varicose, the areolar tissue between them and the mucous membrane undergoes hypertrophy and hyperplasia. This hypertrophied tissue becomes more vascular, and hæmorrhoidal tumours form, the mucous covering undergoes abrasion or superficial ulceration, and we have the irritable, discharging, bleeding masses called internal piles. These are a source of great distress from their bulk filling the rectum, setting up intense tenesmus, and often causing great agony if they be pressed outside the anus and are caught and constricted by the sphincter.

In many cases the hæmorrhage from piles is salutary and relieves the congestion of the liver so often attending, indeed causing the complaint, but in not a few instances the hæmorrhage exceeds this salutary limit, and the continued loss of an ounce or more of blood daily, is followed by extreme anæmia, with the pallor, the bodily and mental depression, the weak heart and panting breath, the swelling of the extremities that indicate the gravity of the condition of the patient. And indeed in this condition death would soon result if relief could not be obtained by surgical means.

In connection with the condition of internal piles just described, we have usually the existence of external hæmorrhoids; these originate as do the internal, from similar causes and similar preceding conditions, but their symptoms, ends, and treatment are widely different. Not being covered with mucous membrane, external piles do not become abraded and bleed, but they are prone to a condition from which this very tendency to bleed protects internal piles, they inflame. Being external to the anus, they are more exposed than are internal piles to mechanical injuries, and to the effects of heat and cold; these circumstances often set up inflammation, with much swelling, a throbbing pain, and very often the attack ends in suppuration.

In addition to the two classes of hæmorrhoids just enumerated there is another which partakes in situation and in tenderness in the characteristics of each, that is the intero-external pile. Generally a small tumour situated at the edge of the sphincter; sometimes almost wholly covered by mucous membrane, when it is red, vascular, abraded; and sometimes with an external part attached to this covered with skin. In this case the cutaneous part or external pile is liable to inflame, while the internal part is liable to bleed. The ailment is so small and often gives so little trouble that the occasional bleeding, if the pile gets in the grip of the sphincter, is the only detriment it occasions, but this is sufficiently disagreeable in either sex. The pile is usually sessile, about the size of a raspberry, and has an abraded surface.

And now about the treatment of piles. Let us briefly trace its progress. At first piles were cut off. This was a most dangerous practice, being usually followed by hæmorrhage from both veins and arteries, which are often large, supplying the hæmorrhoidal tumour and the hypertrophied sub-mucous tissues. Immediately the pile was cut off, the base was drawn up into the rectum, and there bled freely; the rectum was soon filled with blood, this was forced out and the rectum filled again, and so on until the patient died of exhaustion. This operation so frequently ended fatally that it was given up.

The treatment of piles by application of nitric acid came into vogue. This operation is not unsuitable for broad flat sessile piles. The operation is inconvenient in performance. The acid may run over the neighbouring healthy mucous membrane, and is not very manageable, while its application to the common form of internal piles, is most unsuitable. It only affects the abraded surface, and does not destroy and remove the hæmorrhoidal tumor, as is done in operation by excision, by clamp and cautery, or by ligature.

Subsequently was introduced the operation by ligature, an imitation of the natural cure which sometimes occurs when piles prolapse and are gripped and strangulated by the sphincter, eventuating in gangrene and separation of the hæmorrhoidal mass.

The operation by ligature is in many cases successful, the piles are drawn out by suitable forceps, and each one carefully surrounded by a ligature. This is tightened but not tied, until the pile has been removed, when the escape of blood allows the ligature to be still further tightened, and it is firmly tied. This has been improved by Allingham, who snips up the mucous membrane and ties the base of the pile nearer the origin of the iliac venous radical forming it. Well as this operation promised in curing the disease, it had its dangers, and patients occasionally died of phlebitis extending up the veins, and causing thrombosis and pyæmia or septicæmia.

The next advance was the operation by the clamp and cautery,

the piles being drawn out are firmly clamped and cut off, a broad piece being left to be burnt away by the cautery. The theoretical danger of this operation is hæmorrhage, a danger that can however be prevented by care in the use of the cautery. The risks of phlebitis and pyæmia are less than in the operation by ligature, inasmuch as no thread is left to cause irritation of the veins at the base of the pile and the cauterised base itself seems but little irritating and indeed aseptic. Later still other operations have been proposed: injecting the pile with carbolic acid, and thus causing it to shrink; dissecting the mucous membrane up from the margin of the sphincter, and excising not only the pile but the plexus of veins at the lower part of the rectum, and then suturing the mucous membrane above the pile to the margin of the sphincter. This operation, of which I have no personal experience, has been very successful in the hands of Mr. Whitehead of Manchester, who gives a successful record of, I think, 300 cases.

Again, Mr. Benham crushes the piles by strong broad forceps, causing the tumor to slough and wither, while hæmorrhage is prevented by the well known fact that crushed tissues do not bleed. The ecraseur and the electric cautery have also been used in the treatment of this affection. There are therefore many ways in which this painful and exhausting disorder may be treated. It is difficult to say which is the best, each surgeon prefers his own procedure, possibly because he is the most expert in its employment. I myself invariably use the clamp and cautery, and I will describe the mode in which I use it, as there are some little details which I think add to its advantages. Firstly the patient should be prepared by a few days rest, and aperients. After the action of an enema the patient is placed on the side and an anæsthetic is administered. Cocain is said to be sufficient. In two cases in which I employed it, it did not prevent pain, nor do I think it suitable for the somewhat prolonged operation which is necessary, an operation affecting a wide extent of surface and implicating usually skin in the form of external piles as well as the hæmorrhoidal tumours themselves.

The first thing I do is to dilate the sphincter by passing the thumb of each hand into the anal orifice and drawing the thumbs forcibly apart laterally towards each tuber ischii, a sensation of "giving" tells the erudite touch when the sphincter is sufficiently distended to be temporarily paralysed. Stretched laterally towards the tuber ischii on either side the sphincter cannot be sufficiently dilated to cause permanent paralysis.

This manœuvre is most important. Firstly it leaves the anus patulous so that the piles can be easily seen and drawn out, and ensures the securing of every one of the tumors that are present ; secondly, if hæmorrhage should by any chance ensue, it enables the surgeon readily to seize and ligature any spouting vessel or bleeding vein ; thirdly, and this is very important, it prevents pain after the operation from spasm of the sphincter, a condition that was excessively distressing in my earlier operations, where the sphincter was not thus paralysed, moreover by preventing this spasmodic contraction of the sphincter the parts are left quiet and there is much less risk of any displacement of clot in the veins that might lead to their separation with subsequent thrombosis or external hæmorrhage.

I may interpolate here that there need be no anxiety as to the paralysis being permanent. I have employed this procedure in a large number of cases, without the slightest permanent paralysis resulting in a single case.

The piles are now severally drawn down, the clamp is fixed round the base of one, and the pile is removed by scissors, leaving a good quarter of an inch of the base projecting from the clamp, this is dried by a piece of linen and deliberately burnt off with the cautery : Pacquelin's thermo-cautery being the most convenient form to employ. The clamp is carefully loosened. There is generally no bleeding if the cautery has been deliberately and thoroughly used, and if a sufficient stump has been left to be seared down ; but if there be any bleeding point, the dilatation and paralysis of the sphincter enable the surgeon easily to touch it with the point of the thermo-cautery, or even to seize it with artery forceps and employ a catgut ligature. Each pile is attacked in

the same way and removed. The external piles and tags of integument are snipped off with scissors in lines radiating towards the anus as a centre. The removal of these is attended by no bleeding of any moment ; but if any vessel should spout, it should at once be ligatured with a gut ligature. I then bring together the edges of the wounds made by the removal of these tags of skin, and secure them in position by a catgut suture—a suggestion of my friend, and late House Surgeon, Mr. Morrison. A morphia suppository is introduced, a pad secured over the anus by a T bandage, and the patient placed in bed.

The points to which I specially direct attention in this procedure are, the paralysing of the sphincter, which is most important both for convenience, safety, and thoroughness in the operation, and for prevention of pain, or movement from spasm after the operation. The leaving a *long* stump for free and complete and deliberate use of the cautery. The removal in a radiating direction to prevent subsequent contraction of the tags of skin around the anus, and the subsequent suturing of the wounds made.

I may remark that every single little tag of external pile should be removed. If even a small one be left, it very soon inflames, and becomes much larger than might be thought possible, this gives a good deal of pain to the patient and is liable to discredit the surgeon, as the patient concludes that some part of his affection has not been removed. I am convinced that the suturing of these little wounds is a point of great importance to the comfort of the patient, and materially expedites the cure.

The after treatment is simple and consists of rest and light unirritating food until the bowels have been open, which should be ensured at the end of 96 hours by the administration of a warm water enema.

The first action of the bowels is usually a matter of anxiety to the patient, who anticipates severe pain ; this however rarely occurs. There may be a little bleeding which often alarms the patient, but which is really of no importance. It is common, I think usual, for the operation to be followed for the first 24 hours by retention of urine, necessitating the employment of the catheter.

Now why do I believe this to be if not the best, at least as good as any operation for piles. Partly on grounds theoretical and partly from experience.

Theoretically the ligature remains when that is employed as a possible source of irritation and danger.

Secondly, in injections of carbolic acid I cannot free myself from the idea of the possibility of a clot being carried into the circulation.

Thirdly, in crushing there is left a bruised mass of sloughing tissue which would seem liable to set up septic inflammation.

Fourthly, Mr. Whitehead's operation seems to present unnecessary difficulties in performance, it removes the plexus of veins round the lower part of the rectum, that is, it removes healthy tissues, which may have some use in the economy. No doubt by doing this it prevents the recurrence of piles, but this is not a specialty of Mr. Whitehead's operation. The scars left by the cicatrization of the stumps following either the operation by ligature, or by clamps, so compress the veins around and beneath, that *no* subsequent enlargement ever *does* occur. In the operation by the clamp and cautery, the disease is removed at once, there are no ligatures to come away, there are no sloughing piles to be got rid of, as after the forceps crushing operation; and lastly, after an experience of 20 years, in which, in hospital and in private, I have had a large number of cases, I have never yet had a single *contretemps*, either from hæmorrhage, from septicæmia, or from recurrence.

Gentlemen, I have done You can be no more aware than I am, how inefficiently I have fulfilled my task. In considering how I would treat my subject, two ways presented themselves to me, one to work up an exhaustive encyclopædic account of my subject from books, which are as open to each of you as to me; the other, to bring before you some little manœuvres which I had evolved during my practice, and which have not yet attained the dignity of publication; whether my choice was better of the two, it is not for me to say. I thank you for your presence and for your attention.

ON THE SO-CALLED MALIGNANT PUSTULE OF EXTERNAL ANTHRAX.

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(Continued from page 73.)

II. ETIOLOGICAL.

WE now proceed to consider the causation of the peculiar skin lesion of anthrax, and the constitutional symptoms thereon dependent. With this subject the life-history of the *bacillus anthracis* is so closely bound up, that it will be convenient in the present section to include some account of the characters and habits of the micro-organism; for the relationship subsisting between the parasite and the disease is now acknowledged by general consent to be that of cause and effect.

Happily, our enquiries under this head can be conducted in a literary atmosphere which is agreeably serene and refreshing, in comparison with the agitated and heated conditions prevalent during late years around the battle-grounds of tubercle, hydrophobia, and, most recently of all, scarlatina. It is a pleasing augury for other diseases embraced by bacteriology—which one may term the New Learning of pathology—that anthrax, after much fervid controversy, has passed beyond the stage of *quot homines tot sententiæ*, into one where something like unanimity prevails—at any rate so far as relates to causation, the question of prophylaxis being still a vexed one.

The evidence from which modern views of the ætiology of the disease have been constructed, is based partly on observation, partly on experiment. For the sake of clearness, the evidence will be split up, and the most important points dealt with seriatim.

1. *Geographical Distribution.*—‘Malignant Pustule’ is most frequently met with in districts where anthrax is enzoötic

amongst domestic animals. Certain affected parts of continental Europe suffer enormously from the yearly ravages of this highly contagious and deadly disease amongst sheep and horned cattle. It has been estimated that the loss incurred by the farmers in the country about Orleans alone amounted to three million francs in 1881, the mortality in the flocks being as high as 10 per cent.* M. Chamberland writes:—"In the department of Seine-et-Marne certain farms pay a heavy tribute every year to this plague; the districts of Provins, Fontainebleau, and Meaux, alway suffer severely; many farms in these districts go by the name of splenic-fever farms; the best farmers take them with fear and trembling. In the high lands of Auvergne, in Cantal for example, there are *montagnes maudites* (accursed hills), on which flocks lose 10 or 15 per cent. of their number, owing to anthrax (splenic-fever); nor need it astonish us to find that in this part of the country, the probability of the occurrence of anthrax is an element in the price of farms."†

In South Africa, during the Zulu war, an extremely fatal outbreak occurred amongst the horses and oxen; in some places upwards of 50 per cent. were destroyed per week.

Saxony, Hungary, the districts of the lower Danube, parts of Russia, and of North America, also sustain heavy losses from the decimations of the same scourge.

Now it is a very significant fact that precisely in these infected districts, 'malignant pustule' is a common disease. A single German observer, Dr. Nicolai, speaks of having seen no less than three hundred cases. Thus the infrequency of the disease in the British Isles, is to be accounted for by that remarkable immunity from anthrax enjoyed by our domestic animals, to which allusion has previously been made. Moreover, in the cases encountered in English practice, almost invariably the source of infection can be traced to the products of diseased animals imported from abroad.

* Micro-parasites in Disease (New Sydenham Society), p. 561.

† *Le Charbon et la Vaccination Charbonneuse*, pp. 10, 11.

2. *Association with particular occupations.*—The sufferers are either persons who have to do with dead and living anthracised animals, or who, by reason of their employment in connection with certain industries, are brought into contact with materials derived from such animals,—*ex. gr.* fleeces, hides, skins, hoofs, horns, bones, hair, wool, bristles, flesh, blood. Hence the disease is acquired by shepherds, butchers, farm-labourers, farriers, veterinarians, tanners, curriers, leather workers, wool-sorters, fellmongers, furriers, fur-dyers, workers in horse-hair factories, makers of woollen hats, and dock porters.

A digest of the series of twenty-six cases referred to above (pp. 67, 68), as having been treated at Guy's Hospital, affords a striking illustration of this point: fifteen of the patients were tanners, or workers in hides and skins; nine were wharf porters; and one—a woman—was the wife of a stevedore. The remaining case was a girl, aged eleven, who lived in the neighbourhood of tanneries, but the mode of infection was not ascertained.

Moreover, as bearing on the question of the influence of occupation, it is to be noted that women and children are much less often attacked than men. In the districts where anthrax is enzoötic it is estimated that amongst adult patients, 59 per cent. are men. But in non-infected countries, the proportionate number of women patients is considerably lower, the disease being practically restricted to male operatives. Of the Guy's cases upwards of 88 per cent. were men, leaving about 12 per cent. for women, and of these, one—a girl of 14—was employed on Australian rabbit skins, by which she was probably infected. Two of the patients were under 15; the ages of all the rest ranged between seventeen and fifty years, corresponding to the period of working activity.

A characteristic mode of infection, as also the extreme virulence and tenacity of the contagium, are well exemplified by the following narrative of Einike:—“The skin of an ox (from whose flesh two persons got carbuncle, *i. e.* ‘malignant pustule’), which died in the fall of 1852, was soaked in the following

* Ziemssen's Cyclopædia of Medicine: article by Bollinger, Vol. iii., p. 394.

spring in the water of a pond, and then made up by a saddler into harness. The saddler got carbuncle. From a flock of sheep which were washed in the pond four weeks later, twenty perished in a few days of anthrax, and both of the horses (for whom the new harness was made), after they had worn it for four days, died of the disease in forty-eight hours."

Fournier, in 1769, reported on the frequent infection of men engaged in the tapestry works at Montpellier by the wool used in the process of manufacture.

3. *Site of local lesion.*—The so-called 'pustules' are found almost without exception on parts of the body uncovered by the dress, especially the face, neck, and fore-arm. When occurring on surfaces less commonly exposed, as the arm and leg (constituting 16 per cent. of the cases investigated by Virchow), the persons affected habitually leave these parts uncovered.

To refer again to the Guy's Hospital cases, the lesion was situated 15 times on the face, 8 times on the neck, and 3 times on the fore-arm. The explanation is obvious when regard is had to the facilities such places offer for inoculation—as by the direct contact of anthracised materials (hides, etc.), or by scratching pimples and abrasions with fingers charged with the virus, or by flies.

Bollinger says it has been established that anthrax poison can penetrate into the body through the unbroken cuticle, probably by first entering the hair follicle. It is certain that bacteria similar to the *b. anthracis* can pass through such a barrier as egg-shell.

4. *Constant presence of Micro-organism.*—i. *Biology.*—If the blood of an animal suffering from anthrax be examined microscopically shortly before or after death, there will commonly be found immense numbers of delicate, straight, cylindrical rods of extreme tenuity, and having a length, according to Bollinger, of $\frac{1}{3700}$ to $\frac{1}{3000}$ of an inch. Dr. Charlewood Turner* has described specimens obtained from a patient treated by Mr. Davies-Colley, measuring $\frac{1}{4000}$ to $\frac{1}{1600}$ of an inch in length.

* Medico-Chirurgical Transactions, 1882.

Dr. Greenfield gives $\frac{1}{1000}$ to about $\frac{1}{1000}$ of an inch as the measurements of bacilli from man. These discrepancies are, perhaps, to be accounted for by differences in point of age, or in the quality of the materials in which the micro-organisms were cultivated. The rods have never been seen in motion. They are minute vegetable organisms (fungi), consisting of granular, achlorophyllous protoplasm enclosed in a delicate sheath. They are the bodies first discovered by Pollender in 1849, the 'vibrones' of Brauell, the 'bacteridia' of Davaine, the 'bacilli anthracis' of Cohn.

When observed under favourable conditions the bacillus is seen to quickly elongate, and in its interior, at regular intervals, spherical spores appear. Later, the filaments break up allowing the spores to become free. The spores germinate and develop into bacilli in all respects similar to the original one. The filaments may also multiply by transverse, equidistant subdivisions. The organism can be identified by its want of mobility, the shape of its extremities, its dimensions, and the position of the spores; as well as by its well-marked physiological properties.

In common with all bacteria it requires organic and inorganic nutritive substances,—carbohydrates, albuminoids, sulphur, phosphorus, magnesium and potassium; these must be presented with water. Free oxygen is also necessary to the existence of *b. anthracis*: hence Pasteur terms it an *aërobious* fungus. It develops best at a temperature between 30° and 40° C. (= 86° and 104° F.) The bacilli, and especially the spores, are very tenacious of life: the latter resist exposure to the freezing and boiling temperatures of water, and are only destroyed after three hours in a temperature of 140° C. (284° F.); they may be dried, and in that state preserved for an indefinite time.

Various substances are very inimical to the life of bacilli: an aqueous solution of corrosive sublimate of the strength of 1 : 20,000 kills the spores in ten minutes; iodine and carbolic acid are also effective; "chloride of zinc, however, in a 5 per

cent. solution has no effect on anthrax spores, even when they have lain in it for a month" (Koch). Disinfecting agents should be used in aqueous solution, as they are enfeebled in alcohol or oil.

The fully-developed organism is not found in all specimens of anthracised blood; but it has been shewn that spores are present even in the absence of the rods, and that inoculation with such blood may produce true anthrax with filamentous bacteria. Bacilli are also found in sputum, urine, fæces, and sweat.

ii. *Histology of 'Malignant Pustule.'*—Davaine,* in 1863, was the first observer who described the microscopical appearances in the skin. He found numerous bacteria in the focus of the disease.

Viewed *macroscopically* the 'pustule' displays three concentric zones:—(a) a central black eschar; (β) surrounding this, a wreath-like ring of vesicles on a red indurated base; (γ) next, a zone of redness and œdema of varying breadth.

Davaine reported that the organisms were chiefly embedded in the Malpighian layer of the skin beneath the central eschar: here they were grouped together in the form of islands; at the periphery they were scattered between the epithelial cells.

Dr. Charlewood Turner† has given an elaborate histological account of a typical 'pustule' removed during life by Mr. Davies-Colley. Dense aggregations of bacilli were found, especially about the margin of the eschar, just beneath the rete Malpighii. In the situation of a vesicle, the appearance is as though there had been a separation between the cutis and the Malpighian layer above, and that sero-fibrinous exudation escaping into the space so formed, had undergone changes affording conditions specially favourable to the development of the bacilli. Along the sheaths of the hair-follicles the rodlets were numerous; but none were found

* *Comptes Rendus*, LX., p. 1296.

† *Loc. cit. supra.*

in the subcutaneous adipose tissue. Here and there the bacilli were studded with spores; others were broken up into short pieces.

Mr. Arthur E. Barker* has confirmed and somewhat extended Dr. Turner's observations. He found the bacilli in great abundance beneath the intermediate (vesicular) zone of the 'pustule;' they were also numerous where vesicles were about to form, the apices of the papillæ appearing to be softened and disintegrated by their action; whilst they were comparatively scarce beneath the central eschar. Mr. Barker lays great stress on the superficial distribution of the parasite, its favourite habitat being the apices of the papillæ and the adjacent layers of the rete Malpighii. He associates this fact with the dependence of the bacilli upon air for their functional activity.

iii. *Theory of the action of Bacilli Anthracis.*—The enormous multiplication of the micro-organism in infected blood—as many as ten millions being computed to exist in a single drop—must lead to a considerable consumption of oxygen; and, as there is so little of this gas dissolved in the serum, the conclusion has been drawn that the red corpuscles furnish the supply at the expense of their oxy-hæmoglobin. The lividity and dyspnœa common in fatal cases, have been relied upon as proof by the supporters of this view; and Mr. Bryant† has hereon based the suggestion that gaseous oxygen might be inspired as a therapeutic. But M. Colin‡ denies that there is any relation between the number of germs and the degree of asphyxia. We are disposed to think that the bacilli can obtain their needed oxygen from the respired air, whilst they are passing through the pulmonary circulation, oxygenation of the reduced hæmoglobin being, at the same time, impaired.

Probably, much more dangerous than deficient aëration of the blood, is the production of poisonous chemical substances (ptomaines), at the site of the local lesion, and their subsequent

* Medico-Chirurgical Transactions, Vol. LXIX.

† Lancet, Mar. 10, 1883: Report of Pathological Society.

‡ Acad. de Méd., Paris, Séance, Nov. 12, 1878.

diffusion throughout the body. That such septic products result from the activity of certain organisms in animal bodies, is well known.* Pasteur suggests that there is even such a thing as bacterial suicide, the microbes being injured by their own poisonous productions.†

iv. *The spread of Anthrax.*—The light and almost indestructible spores are the chief agents in propagating the disease. Every part of an infected animal appears to harbour them or the mature bacilli, and they may be transported immense distances by winds, or by commerce; then, if they enter a suitable soil, germination follows.

Enzoötic anthrax is to be accounted for by the faulty disposal of diseased remains. Even after tolerably deep inhumation, it would appear that earthworms can take the germs to the surface, and there deposit them in their castings. Cattle are thus liable to infection while cropping the herbage. Pasteur's views on this point‡ have been opposed by Koch,|| but confirmed by a Commission appointed by the French Academy of Medicine.§ The Commissioners caused the death of a guinea-pig from anthrax, by inoculation with earth taken from a trench wherein infected carcases had been buried twelve years. Earthworms found in this grave contained bacilli in their intestines; and cultivations of the micro-organisms, effected the fatal anthracisation of guinea-pigs.

These facts have an interesting and instructive bearing on the old malarial theories.

(To be continued.)

* Vide 12th Rep. of Med. Off. to Loc. Gov. Bd., by Dr. Burdon Sanderson.

† Micro-parasites in Disease : New Sydenham Soc., p. 641.

‡ Bulletin de l'Acad. de Méd., 1880.

|| Mittheil. Gesundheit., 1881.

§ Lancet, May 8, 1881.

REVIEWS.

THE CLIMATIC TREATMENT OF CONSUMPTION.*

THIS is a good book and one very pleasant to read, for the language is always thoughtful and well chosen. It tells the opinions formed by a keen observer from his personal experience of the relative climatic values of various sanatoria in Australasia, the Cape, California, Algeria, the Riviera, Switzerland and the British Islands so far as regards their effect on the treatment of consumption. Throughout there is so much delicate sympathy with the sick fancies and sensations of an invalid that one cannot but suspect that ill-health was the cause of most of Dr. Lindsay's wanderings. His bright, albeit, well-weighed cheeriness as to the benefit to be derived from a thorough trial of climatic treatment is not only reassuring to the consumptive in general, but suggests to us that Dr. Lindsay himself is a subject for our hearty congratulation. But the author does not forget to speak of other sanatoria.—*e.g.* Egypt and Madeira—which have not been visited by him, so that his book may be fairly considered a complete treatise on the climatology of consumption. In the case of these unvisited sanatoria however he wisely refrains from detail and dogmatism.

Though he joins in the common complaint against the increasing population of Davos he seems to regard this as the place par excellence for all those whose constitutions can still react to its keen stimulation. At the same time he admits that the airiness and greater sunshine of the Maloja and St. Moritz may prove more suitable to some few robust consumptives, while the peace and gentler exhilaration of lovely little Wiesen may act as a healing balm to those weary souls who are too tired to joy in the busy haunts of men and in whose foredone bodies

* The Climatic Treatment of Consumption. By J. A. Lindsay, M.A., M.D. London: McMillan. 1887.

the friendly buffeting of Davos' cold fails to produce the glow of healthy reaction.

For those who are unable to stand the stimulation and rarefied air of high altitudes the author recommends the climate of Dry Inland Plains, and of these the Riverina of Australia seems easily to bear the palm. Here he who can be content with the primitive life and rough though hearty hospitality of the Bush can live in dry sunshine all the year round, learn to ride buck jumping horses, and to make himself otherwise generally useful. Should the heat of Summer and the hot North wind prove too fierce, he may fly for a couple of months to Tasmania—that great Australasian garden.*

To the neurotic consumptive the Ocean voyage—or rather the ocean life, for one voyage is mostly a delusion and a snare—is the greatest blessing, for here he can eat lotuses all day long in the purest of air, free from the dangers of catarrh.

These three climates then—of High Altitudes, Dry Inland Plains, and the Ocean, are the ones which should be tried if possible ; and to be tried seriously, not as a Summer or Winter jaunt, but as the chief aim of life, and therefore one to be patiently and perseveringly followed, just as some men pursue the false flashes of gold ; an aim to be followed not with peevish querulousness because of its unspeedy accomplishment, but with the steady assurance of faith ; and so followed, not seldom, *Finis coronabit opus*.

In truth there are cures enough and to spare for most diseases born of man's unwisdom ; but human folly refuses to trust them : it approaches them with half-hearted faith and receives corresponding benefit. We confess it is very difficult for any one brought up in our highly wrought society to believe that the simplest pleasures of health are a purer form of happiness than all the complex joys of civilisation when these can only be

* A phthisical friend of the Reviewer's who has spent several winters in the Riverina speaks of it as bare of comfort, monotonous, and provocative of too great physical exertion. But example is better than precept ; and he has gone there repeatedly, and always with benefit.

seen through the gloomy atmosphere of a distempered body. But if each one of us would but carefully watch the life of some friend who has the exquisite possession *corporis sani*, English civilisation notwithstanding, we should soon perceive how wonderful a multiplier of happiness this same *corpus sanum* is; or indeed if we would only dispassionately compare the joys of our *sane* with those of our *insane* moments we should soon discover how health far excels all the other factors put together of that complexity called happiness. It, and it alone can turn, and that right speedily, the winter of our discontent into a glorious summer.

THE MINERAL WATERS OF VICHY *

THIS is a nicely got up book, bound after the manner of a traveller's handbook with two useful maps in a side pocket.

The preface tells us that it is written more for the general public than the profession, and Chaps. vi. to xiii. inclusive of Part i. contain a popular description of the diseases likely to be benefited by a stay at Vichy. The remainder of Part i., Chaps. i. to v., gives a careful and full account of the various springs and their special uses with the various methods of taking the waters. While Part ii. is a pleasant and interesting relation of the many points of interest in Vichy and its neighbourhood.

The volume is written in a light and easy style, and so forms a pleasant contrast to most of these monographs on water cures. Still the author does not shrink from flooding his pages with bewildering analyses of the various springs, wherein not the most infinitesimal constituent is omitted, the meaningless figures straggling a weary length to the right of the decimal point, and consisting chiefly of o's.

* The Mineral Waters of Vichy. By Dr. C. E. Cormack. London: Churchill. 1887.

NEURECTASY OR NERVE-STRETCHING.*

THIS brochure is a reprint of the Bradshaw Lecture for 1883, delivered at the Royal College of Surgeons, and reported fully in the *Lancet* and the *British Medical Journal* at the time. The lecture is published almost as it was delivered, and whatever has been recorded new on the subject since 1883 the author has chosen to embody in an appendix containing twelve illustrations by Victor Horsley. The Lecture deals with—1, Extensibility of Nerves; 2, Elasticity of Nerves; 3, Cohesion or Strength of Nerves as shown by their breaking strain in pounds weight; 4, Effects of stretching on the structure of a nerve; 5, Effects of stretching on the nutrition of living nerves; 6, Effects of stretching on the functions and properties of a nerve; 7, Effects of stretching on the nervous centres; 8, Effects of stretching as an operation for the relief or cure of pain; 9, Rationale of the effects of nerve-stretching for the relief or cure of pain; 10, Indications for the performance of the operation of nerve-stretching; 11, Mode of performing the operation; 12, Dangers of the operation; 13, Non-cutting or bloodless operations for nerve-stretching; 14, Conclusions.

The most interesting part of the work is to be found in the Appendix, and this chiefly for the reason that it is an expression of the author's present opinions as well as a statement of the latest physiological and pathological discoveries on the subject. The special application of neurectasy may be thus stated:—It is not only useless but it is dangerous and should be prohibited in all cases of serious central disease, such as confirmed ataxy, myelitis, fully established tetanus, pure epilepsy, and paralysis agitans. In reflex forms of epilepsy, in an ascending neuritis bringing about epileptiform seizures, in the early stages of a distinctly traumatic tetanus, provided that in

* Neurectasy, or Nerve-stretching, for the relief or cure of pain. By John Marshall, F.R.S. With an Appendix. Illustrated. London: Smith, Elder and Co. 1887.

any of these cases the peripheral cause of irritation can be clearly localised and the affected nerve or nerves be accurately defined, nerve-stretching may be serviceable if employed soon enough. It is most beneficial in peripheral disturbances of sensibility and motility—less in the latter (spasmodic affections) than the former (neuralgia). Even here it should be employed only after all other means—drugs, massage, electricity, etc., have failed to give relief. Where “neurectasy” has failed, neurotomy and neurectomy are privileged to follow on.

It is interesting to call to mind how a few years ago the theoretical enthusiasts of our profession wrote of nerve-stretching as if it was the coming panacea for all human ailments due to disordered nerve function. It is sad to realise to-day how limited is the field of its application. We have ceased to hear from the continent wonderful cures of locomotor ataxy accomplished at the hands of the “Neuro-surgeon.”

We are indebted to Professor Marshall for an interesting contribution to surgical literature, as well as for an authoritative and reliable statement of the actual facts concerning the operation of “nerve-stretching” and of the good we are to expect from it.

VASO-RENAL CHANGE *versus* BRIGHT'S DISEASE.*

YET another production from the easy flowing pen of Dr. Fothergill. The title page bears the pathetic motto “*je vieillis*,” but there is no sign of senile degeneration in the book, rather is it brimful of youthful audacity, and that sort of courage which carries some people where angels fear to tread. After a brief historical resumé, Dr. Fothergill develops a theory (1) that the uric acid diathesis depends upon a reversion of liver function to that of an earlier type, and (2) that uric acid accumulated in the blood sets up a depurative action by virtue of which it stimulates the vaso-motor centre so that the vessels contract; this

* Vaso-Renal Change *versus* Bright's Disease. By J. Milner Fothergill, M.D. Edin., &c. London: J. Ballière, Tindall & Cox. 1887.

raises the pressure in the renal glomeruli and is followed by a free flow of urine by which the excess of uric acid is swept away. This theory is very severely criticised by Dr. Mott who speaks of it (p. 25) as "unsupported by experiment or by clinical observation and experience." Dr. Fothergill compares this process with that which occurs when sugar accumulates in the blood. This he says causes thirst, copious drinking promotes diuresis and the sugar is thereby eliminated. But it is at least possible that the reverse takes place. The sugar causes diuresis and the loss of water creates thirst.

He divides the subjects of the uric acid diathesis into two groups—the *Norse* type, the fat florid large eating Englishman with capacious digestive organs who loads his blood with uric acid by vast quantities of animal food, and the *Arab* type, the slim, neurotic town-bred Englishman whose liver is insufficient to convert into urea the moderate quantity of albuminoid he eats. It may be questioned how far Dr. Fothergill is exact in calling the first *Norse*, but he is not further out than in calling the other *Arab*. We presume the words are not meant to have any ethnological significance. He then develops the views taught by Budd, Murchison, Johnson, and now very generally held, that the elimination of uric acid and allied waste products by the kidneys causes chronic Bright's disease, while it at the same time sets up wide spread vascular changes, a view which we have no desire to dispute. But he seems to think that we ought to give up the name of Bright's disease, and there we are unable to follow him. There are reasons no doubt why such names are objectionable, but we do not see any particular reason for abandoning the term in this special instance. To us it seems that the group of kidney diseases which he describes constitutes Bright's disease *par excellence*, and that the word is only wrongly used when applied to acute nephritis following scarlatina, etc.

The style of the book is very easy, but this ease is attained at some sacrifice of accuracy. For example, it is hardly correct to write (p. 14) that "an involution of the surface gives us the

urinary apparatus," or that "the aortic valves are liable to gouty change" when writing of uratic deposits elsewhere, or that the hypoblast gives us the "glandular organs of organic life," if the pancreas and kidneys are included in these. At page 64 Ebstein is credited with a case published by Rupstein; on page 66, uric acid in the gastric juice is given as a cause of acidity of the stomach. On page 96 he makes the error of writing as if *endarteritis obliterans* was peculiar to syphilis, though it is well-known to occur in all chronic inflammations, and can be seen, as Gull and Sutton pointed out, most typically in contracting kidneys. He repeats a section on epistaxis at pp. 94 and 103, saying much the same in each. On page 118 he speaks of "cirrhosis" and "chronic interstitial nephritis" as two distinct things, the first being indicated by granular the second by hyaline casts. Granular casts are epithelial or hyaline casts which are granular from infiltration with micrococci or molecular fat, and casts reveal rather the nature of the process going on in the kidney than its actual anatomical condition, which is often very difficult to diagnose, so that we must frequently be content with an expression "Chronic Bright's Disease." On page 170 atheromatous degeneration of the pulmonary artery is described as an ordinary result of obstructed pulmonary circulation. These are only a few of many similar loose statements, which appear to us to characterise Dr. Fothergill's style and to detract seriously from the value of his contributions to medical literature.

RETROSPECT.

SURGERY.

BY JORDAN LLOYD, F.R.C.S.,
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Head and Face.—A valuable contribution to our means of diagnosis of cerebral disorder appears in the July number of *The American Journal* from the pen of Dr. Macewen, of Glasgow, under the title of "The Pupil in its Semeiological

Aspects." The paper is well deserving of careful study. From the author's conclusions we extract the following :—"When the function of the brain is in abeyance the pupils are in a state of stabile mydriasis. When the function of the brain is interfered with by conditions usually included under the term 'irritation' the pupils are in a state of myosis ; sometimes labile but usually stabile myosis. The same pathological factors which cause myosis may also cause mydriasis, the degree in which these factors are present being the determining point between the former and the latter, and not *merely* the particular locus on the brain. When the function of one half of the cerebrum is placed in abeyance by a superficial or cortical lesion the pupil on the same side as the lesion is in a state of stabile mydriasis. When the function of one half the cerebrum is interfered with by some source of cortical irritation the pupil on the corresponding side to the lesion is in a state of myosis. Hæmorrhage on to the pons varolii when small causes strongly contracted pupils ; but when it is more extensive, involving the grey matter beneath the aqueduct of Sylvius, a state of stabile mydriasis is induced. Irritation of the cord, especially the cilio-spinal axis, produces dilatation of the pupils, while destruction of the cord causes contraction."

In St. Thomas's Hospital Reports, Vol. 15, 1886, Mr. Clutton draws attention to Carnochan's operation for excision of Meckel's ganglion in intractable cases of neuralgia of the fifth nerve. He gives two cases operated on by himself with very satisfactory results. Mr. Pitts also describes two cases of nerve-stretching for intractable neuralgia of the inferior dental nerve, in both of which the painful symptoms were removed. He operated in both cases from the mouth through an incision made along the inner border of the ramus of the jaw.

Chest, etc.—An extraordinary case of attempted removal of a needle from the right ventricle of the heart was reported at the seventeenth congress of the German Society of Surgery, held in April last, by Dr. Stelzner, of Dresden. The patient, a young student, had endeavoured to kill himself by thrusting a

sewing needle into the heart. There were no symptoms for twelve hours, then pain and dyspnoea supervened. Twenty-four hours later these had increased, and the patient was so collapsed that it was thought necessary to remove the foreign body. A portion of the fifth rib was resected and the pleural and pericardial cavities opened. By the pressure of a finger passed under the heart the eye of the needle was thrust through the anterior wall of the ventricle and an attempt made to seize it. In consequence of the violent movements of the heart the needle suddenly slipped back again into the heart. No further attempt was thought justifiable. An iodoform tampon (of what ?) which protected the exposed pleural cavity was, during a deep inspiration, drawn into the chest and could not be found again ! Notwithstanding pneumo-thorax and extensive pleuritic effusion the patient made a good recovery by the end of the fourth week and continues quite well and free from uneasiness. In the course of a discussion on this case Dr. Hahn showed a piece of a knitting needle which had been removed during life, by von Bergmann, from the heart of a girl, aged eleven. The needle was removed a few hours after the accident. It was withdrawn slowly to allow of coagulation along the course of the wound in the wall of the heart.

Dr. Gross, of Philadelphia, publishes in *The American Journal of the Medical Sciences* (July, 1887) a paper on Sarcoma of the Female Breast based upon a study of one hundred and fifty-six cases. Of the varieties of sarcoma, the spindle-celled, which include the fibrous, constitute 68 per cent., the round-celled 27 per cent., and the giant-celled 5 per cent. of all cases. As a rule the spindle and giant-celled are firm, like fibromata, while the round celled are soft and elastic. The spindle-celled tumors are soft in about one third of all examples, and the round-celled are hard in about one sixth of all cases. Inflammation and suppuration of mammary sarcoma are infrequent, but ulceration of the overlying tissues occurred in 18.59 per cent. Breast sarcomata are usually solitary ; out of the 156 cases 10 only were multiple. 27.0 per cent. occurred before the 16th year ; 45.27

per cent. between the 16th and 40th; 52·02 after the 40th. Spindle cells develop rather earlier in life than round-celled. As a rule breast sarcomata are free from superficial or deep attachments; the contiguous structures are not invaded by tumor elements; the skin remains natural in color and texture; the subcutaneous veins are not enlarged; the nipple is normal; and the associated lymphatic glands are not invaded. To these general statements exceptions have from time to time to be noted.

In the following table the affinities and contrasts of the three principal varieties are set forth at a glance:—

	Spindle-celled.	Round-celled.	Giant-celled.
Average age of appearance ...	36 years.	48 years.	47 years.
Appear before 16th year ...	12·08 p. cent.	·83 p. cent.	—
Pain	60· „	10·81 „	43· p. cent.
Skin discoloured	20·88 „	32·35 „	25· „
Ulceration	17·58 „	23·58 „	25· „
Veins enlarged	17·58 „	11·76 „	—
Glands swollen	6·59 „	8·82 „	37·5 „
Glands infected	—	2·94 „	—
Adjacent tissues invaded ...	13·18 „	17·64 „	25· „
Local reproduction	65·10 „	60· „	57·14 „
„ „ average date of	12 months.	4 $\frac{3}{4}$ months.	12 $\frac{1}{3}$ months.
Metastatic deposits	20·40 p. cent.	25 p. cent.	—
Average life with operation ..	90 months.	54 months.	108 months.

Osteoid sarcoma is the most malignant of the mammary sarcomata. Breast sarcomata must be treated by complete excision of breast with para mammary fat and fascia of the pectoral muscle. In case of recurrence, growths should be freely excised as fast as they appear, as such a practice not only prolongs life, but may bring about a final cure.

In the *Centralbl. für Chir.*, No. 11, 1887, Küster calls attention to the conservation of the subscapular nerves in operations for removing the contents of the axilla. These nerves are most likely to be injured in clearing out cancerous glands from this space. As a result of this injury the shoulder movements are impaired. There may be inability to lift up the arm or to move it backwards. Küster purposely endeavours now to avoid these structures, and with success. The nerve to the subscapularis is less liable to be injured than those to the teres

major and latissimus dorsi. He gives full directions how this division of subscapular nerves is to be avoided.

In the British Med. Journal for June 16, Mr. Arbuthnot Lane again calls attention to fracture of the first rib as a separate injury. It is produced by pressure applied to the shoulder girdle being transmitted through the clavicle to the thorax. He says that instead of its being a rare fracture, it is produced with greater facility and occurs more frequently than does fracture of the centre of the clavicle. He has found four undoubted examples of this lesion in 200 subjects examined in the dissecting room. My colleague, Mr. Marsh, has recognised the condition on more than one occasion during the past twelve months, and my house surgeon, Mr. Messiter, shewed a specimen removed *post-mortem* from a patient who had succumbed from other injuries.

Abdomen.—Dr. A. C. Bernays, of St. Louis, has recently published a successful case of removal of a large foreign body from the stomach. A man aged 38 years swallowed a silver plated table knife, nine inches and a quarter in length. An hour later it was removed by abdominal incision. The gastric wound was closed by means of five interrupted catgut sutures which were then buried by eight Lembert stitches in one row. The abdominal wound was closed with deep and superficial sutures. During the first days water only was allowed by the mouth; nutrition being entirely administered by the rectum. He was up on the tenth day and made a complete recovery.

A brilliant case of abdominal section for punctured wound of the liver is recorded by Dr. Burckhardt in the Centralbl. für Chirurgie, No. 5, 1887. The patient, a man aged 25 years, was wounded in the left side of abdomen with a butcher's knife. Increasing collapse with dulness in the belly appeared to justify abdominal incision. The liver was exposed by extending the original injury, and the belly was found full of blood which had escaped from a wound a little more than an inch in length in the left lobe of the liver. Dark blood was still flowing from this wound, the cavity of which extended two inches into liver

substance. The wound was plugged with iodoform gauze, the ends of which were brought out through the opening in parietes. The parts were cleaned with corrosive lotion, a drainage tube inserted and the abdominal wound sutured. There was a free discharge of bile from the wound for nearly 8 weeks and a sinus remained seven months later. This was found to depend on an overlooked strip of gauze which had been allowed to slip out of sight; this was removed, the parts rapidly healed over, and at the time of report patient was perfectly well.

Dr. Wilson and Mr. Rickman Godlee together publish in *The Lancet* for July 30 an interesting case of Typhlitis which recovered after the evacuation of a localised peritoneal abscess. A youth 17 years old was seized with pain in the lower abdomen, soon followed by rigors. Nine days after the commencement of his illness he developed a swelling in the right iliac fossa, but his other symptoms improved. Shortly afterwards he suddenly developed acute general belly pain with collapse, and on the following day (10th from beginning) Mr. Godlee made an incision into the inguinal swelling; the peritoneum was exposed and opened, and an ounce of extremely offensive pus escaped from a cavity whose walls were bounded posteriorly by adherent coils of intestine. He was fed on nutrient enemata and the abscess treated antiseptically. He passed through a critical illness, but five weeks later the wound was soundly healed and the patient was convalescent. Two somewhat similar cases, both successful, were reported a few months ago in *The Copenhagen Hospitals Tidende*, by Dr. Becker, of Naksbon.

Pelvis.—In *The Lancet* for July 23 is a report on a case of successful suture of the bladder through an abdominal incision after traumatic rupture, by Mr. Timothy Holmes. The patient, a man 24 years old, had been kicked in the abdomen during a quarrel. He had been drinking freely and had not emptied his bladder for an hour before the injury. He felt pain at the time and walked home, a distance of a quarter of a mile. One hour and a half later he was seen by a doctor, who drew off by catheter five ounces of blood-stained fluid. Four hours after the acci-

dent he was admitted to St. George's Hospital, where one and a half ounces of bloody fluid were again drawn by catheter. Mr. Holmes saw him six hours after the accident; he was in great pain but not collapsed. Under ether a silver catheter was passed and at first hardly drew off anything, but on passing the instrument onwards more than half a pint of blood-stained fluid was obtained, and the point of the catheter was felt nearer the pubes than the umbilicus. The abdomen was opened and a horse-shoe-shaped laceration discovered towards the right side. It was two inches long and was completely in sight. The rent was closed with eight silk sutures passed through the peritoneal and muscular but avoiding the mucous coat. The peritoneal cavity was washed out freely with warm water and the abdominal wound closed. An incision was made in the perinæum with the object of opening the urethra, and a drainage tube inserted, but as no urine came through this subsequently it is probable that the urethra was missed altogether. He passed urine naturally three times during the first night. Twenty days after the accident he was allowed to leave his bed as he appeared to be perfectly well and has continued so up to date of report. The appended remarks are both interesting and useful.

In the same Journal (June 4) Teale also reports a case of suturing the walls of a ruptured bladder. Man, aged 25 years, was kicked in the abdomen and perinæum during a quarrel and complained of pain in belly and inability to pass urine. On the following day a median incision was made into the bladder through the perinæum and a drainage tube inserted. The abdomen was then opened and the wound on the posterior surface near the apex of the bladder and one inch long, was sutured with six fine catgut sutures. The abdominal wound was tightly closed. The bleeding from the perineal wound was so severe that the man died next morning, about eighteen hours after the operation. At the *post mortem* the rent in the bladder was water-tight and there was no peritonitis.

A remarkable case of sloughing of the scrotum unconnected with urinary extravasation is recorded in The Lancet, June 4,

by Dr. C. E. Harrison, and Mr. H. N. O. Cross. A private in the Grenadier Guards, 41 years old, was admitted into hospital with considerable swelling of the scrotum and perinæum, with a thin dark streak of discolouration on the anterior surface of the scrotum. The appearance was suggestive of extravasation of urine, but the urine was passed freely and was slightly albuminous. No cause could be assigned for the disease, except that two days before he had fallen down stairs onto his buttocks. The entire scrotal tissues sloughed away except two small lateral pieces, and the testes were exposed for 5 or 6 weeks, but subsequently became drawn up towards external abdominal rings and covered with skin. He made a complete recovery. I have a precisely similar case under my care at the Borough Infirmary at the present time. I have never seen one before.

General.—An important paper on "Precocious Gummata," by Dr. R. W. Taylor, of New York, appears in The American Journal. In this the author calls attention to the still unsettled problems in syphilology relating to its periods, classifications and chronology. Modern observation shews that the old division into primary, secondary and tertiary stages is inappropriate, since we observe some of the so-called tertiary lesions in the secondary period, and in others seemingly secondary lesions in the tertiary period. Marked cases of early gummatous development are frequently met with in the first year of the disease, as are also many of the affections of the nervous system. He recognises three forms of the precocious gummata: the first, the generalized form; the second, the localized form; the third, the neurotic form. Of each of these forms there are two varieties: a resolute or non-ulcerative, and an ulcerative variety. Precocious gummata occur most often in the alcoholic. The scrofulous diathesis does not predispose. The use of iodide of potassium is indicated either combined with mercurial, or with the use of inunctions of mercurial ointment.

OBSTETRICS.

BY ALFRED HARVEY, M.B.

A case of Eclampsia with Acetones in the Urine.—A. J. Smith, M.B., records a case of puerperal eclampsia treated at the Rotunda Hospital, in which, in addition to half a column of albumen, acetones were present in the urine. The tests by which their presence was ascertained were the perchloride of iron and hydrochloric acid, and the iodoform reaction with solution of iodide of potassium in liquor potassæ. The convulsions were ushered in by that acute epigastric pain to which attention has lately been called in connection with puerperal eclampsia, vomiting, and feeling of suffocation and oppression about the chest. The treatment adopted was induction of labour with chloroform inhalations and enemata of chloral hydrate and bromide of potassium, with a satisfactory result. Mr. Smith concludes with the following remarks:—"When we consider the premonitory symptoms, the frontal head-ache, the violent epigastric pain and vomiting, associated with the marked respiratory troubles which immediately preceded the convulsions, together with the peculiar fast small pulse, one is inclined to the belief that the acetones were the cause rather than the result of the convulsions." (Brit. Med. Jour., 1887, I., 1275).

Pilocarpine in Puerperal Convulsions.—The success which has attended the use of pilocarpine in some cases of puerperal convulsions recently, has led Dr. Kirk, of Glasgow to put on record two cases in which it was administered, one of which terminated fatally, the other favourably, a result which, however, he is not disposed to attribute to the drug, believing that it would have happened independently. Dr. Kirk is strongly convinced of the superiority of a diuretic over a diaphoretic treatment in this condition; he suggests the use of incisions or of Southey's tubes in cases in which œdema of the legs is present. (Lancet, 1887, II., 307).

Rupture of the Uterus.—Dr. R. W. Crichton gives, in the Brit. Med. Jour. for June 18, 1887, the subsequent history of a case of rupture of the uterus in which abdominal section was performed twenty-three years ago (originally reported in the Edinburgh Medical Journal, August, 1864). As the patient subsequently stood the strain of three pregnancies and is now in excellent health, the case is specially interesting at a time when the controversy between the advocates of "Porro" and the Cæsarian operation is raging so acutely.

The Mechanism of the Third Stage of Labour.—At the recent meeting of the Obstetrical Society of London Dr. Champneys dealt with this subject in a series of exhaustive papers. Dealing first with the separation and expulsion of the placenta, he discusses the various theories of the cause of its detachment:—

A.—By contraction and retraction directly, through reduction of the placental site.

B.—By contraction and retraction indirectly—(*a*) By separation of the centre, which is less firmly attached than the edge, leading to aspiration of blood. (*b*) By squeezing blood toward the surface during contraction. (*c*) By rapid diminution of intra-uterine pressure consequent on the birth of the child.

C.—By detrusion, the placenta being forced in the direction of least resistance.

He considers the question at issue is, whether the separation of the placenta is independent of rupture of utero-placental vessels *as a cause*.

The facts bearing upon the question he considers to be:—

1. Some measurable hæmorrhage is a normal constituent of the phenomena of the 3rd stage of labour.
2. The placenta presents, in the great majority of cases, by a point on the amniotic surface.
3. The presenting point is almost invariably near the lower edge of the placenta.
4. The position of the presenting point varies with the position of the placenta.
5. The "*inversion*" of the placenta is not due, in the great

majority of cases to traction on the cord, but is a part of the natural mechanism.

He concludes that (1) the chief factor in the separation of the placenta is the reduction of the placental site, but that it is probable that some escape of blood plays a subsidiary part in the ordinary mechanism of placental detachment. (2) That the slight inversion of the placenta which does take place is probably due to this cause. (3) That the effusion of blood is not, in ordinary circumstances, sufficient to form a large mass bulging into a uterine cavity behind the placenta.

Dr. Champney then treated the question of the separation and expulsion of the membranes. He considers the natural process to be (1) separation of the lower pole of the ovum by retraction of the lower uterine segment during the premonitory stage of labour; this requires a complete "bag of water." (2) Wrinkling and partial separation of the membranes by diminution of the internal surface of the uterus; this requires some escape of the waters. (3) Peeling off of the membranes by the traction of the descending placenta; this requires evacuation of the uterus. He concluded the series of papers by dealing with *some causes of retention of the membranes*, dwelling on the fact that too early a rupture of the membranes is likely to prevent the early separation of the lower pole of the ovum, and so to lead to retention of the membranes by adhesion round the *os internum*; while too late a rupture favours separation of the chorion and amnion with retention of the former.

Management of the Third Stage of Normal Labour.—Auvard, of Paris, sums up the question by recommending, "do nothing when the placenta is separating; interfere if need be during the second period by expression through one hand on the uterus and by traction on the cord with the other; during the third period continue traction with one hand and support the uterus with the other."

DISEASES OF THE EYE.

BY E. WOOD WHITE, B.A., M.B., B.CH.

On Cataract Extraction without Iridectomy.—(H. Knapp, M.D., New York, Arch. Ophth., Vol. xvi.)—Statistics are given of 29 successive cases where the lens was removed by Daniel's method without exsecting the iris. This method of operating has been revived in France, and outside that country as yet has few adherents, though the French surgeons claim that it is superior to Græfe's or any other method. The author insists on the strictest antiseptic precautions being observed. Before the operation the conjunctival sac and surrounding parts are carefully washed with solutions of corrosive sublimate, Pane's solution, or carbolic acid. In performing the section a conjunctival flap is avoided, unless there is chronic conjunctivitis or dacryocystitis, as he considers that if these be present the flap guards against secondary infection of the wound which is liable to take place. Great care is taken to remove all the lens matter and other debris, the curette, if necessary, being freely used. The last part of the operation is the washing out of the anterior chamber. This is effected by means of the nozzle of a lachrymal syringe, which is introduced into the wound, and a few drops of the beniodide solution thrown into the chamber, the nozzle of the syringe being then made to pass along the section so as to moisten the wound from one end to the other. In two of the cases operated on there was incarceration of the iris, and in two suppurative inflammation. Posterior synechia were found in ten cases. Dr. Knapp summarises his paper by saying, that if the simple extraction be compared with that of iridectomy the former has the following advantages:—

1. It preserves the natural appearance of the eye.
2. The acuteness of vision, other things being equal, is greater.
3. Eccentric vision and orientation are much better, adding to the comfort and safety of the patient.

4. Parts in direct connection with the ciliary body, such as shreds of capsule, are not so liable to be locked up in the wound, and thus transmit morbid conditions to the ciliary body.

5. It may not necessitate so many after-operations.

Among disadvantages are mentioned—that the section must be larger and more accurate. The expulsion of the lens and cleansing of the papillary aperture are more difficult. Prolapses of the iris and *synechia* are more numerous; and that the operation is not applicable to all cases, whereas the combined method is.

On the adaptation of Corning's Method of producing local anæsthesia by cocaine to operations on the eyelids.—(D. Webster, M.D., New York Med. Record, March, 1887). The Author points out that the subcutaneous injection of cocaine is very unsatisfactory in its result, for by causing subcutaneous swelling it much embarrasses the steps of a delicate operation. He states that by Dr. Corning's method the desired results are obtained. The following three things are necessary :—

1. An instrument for making multiple punctures of the skin, the use of which is painless and bloodless.

2. A Galvanic battery.

3. A solution of cocaine, 4% being sufficient. The portion of skin which it is desired to anæsthetise is first punctured by the use of the instrument, which is like a hypodermic syringe, and contains a number of needles about 1 mm. apart. The only sensation felt being of a slight blow. A sponge saturated with a solution of cocaine is then attached to the positive pole of the battery, and placed in contact with the punctured skin, while the negative pole is placed in contact with some other part of the patient's body, and five or six cells turned on. The anæsthesia may be carried to any depth, to the bone if necessary, by removing the sponge and driving the needles in deeper.

Dr. Webster has operated on many cases in the above way, and finds his results most satisfactory.

The Amblyopia of Squint.—(O. F. Wadsworth, M.D., Boston Medical and Surgical Journal, Jan. 1887). The author is strongly

opposed to the theory that the amblyopia in strabismus is the result of a suppression of the image formed in the squinting eye, and strongly supports Schweigger's view that the amblyopia is due to some congenital defect in the deviating eye. He states that the facts that a not inconsiderable proportion of strabismies have vision alike, or nearly alike, in the two eyes, even when, according to all evidence attainable, the squint is strictly monolateral; that in a considerable number of cases the amblyopia of the squinting eye is not of high degree, while in some of these vision of the non-squinting eye is also below the normal standard; that only about 30% of squinting eyes among them, many with high degrees of astigmatism or other refractive error, have vision less than $1/7$; and finally, that there are many persons with congenital monocular amblyopia of equally high degree who do not and never have squinted, make it a reasonable requirement that, before the theory of suppressive amblyopia be accepted, some positive evidence of its existence more than a mere hypothesis should be brought forward to support it.

Dr. Wadsworth reminds us that the importance of the question is not merely theoretical, for if amblyopia by anopsia be a fact it would be one's duty to operate on all squint cases as early as possible.

A new operation for Entropion.—(Dr. W. F. Smith, Chicago. Arch. Ophth., Vol. xvi., 1887.)—It is pointed out that after severe granular ophthalmia the lashes lose their upward curve because of atrophy of the fibres of the orbicularis muscle situated beneath the cilia, and contraction and obliteration of the Meibomian ducts, sweat glands, and nutrient vessels. These considerations suggested the idea of transplanting a narrow strip of cuticle without a pedicle in such a manner as to supply to some extent the tissue lost by atrophy, and in this way to lift the lashes from the globe. The lid is first of all split, as in Arlt's operation, about 4 mm. in depth, so as to exclude all the cilia. Two parallel incisions are then made in the skin of the lid above the cilia, the incisions being about 1.5 mm. apart, and of the same length as the first wound. Two sutures are then

inserted into each end of the skin included between the parallel incisions, and the flap dissected away from its detachments and placed within the slit formed between the lashes and the lid, and then fixed by three sutures. Dr. Smith has in this way operated on several patients, and is much pleased with his results.

Prolapse of Iris in Corneal Ulcer, New Treatment.—(J. R. De Gama Pinto, Heidelberg. Ophth. Review, Feb., 1887). The author states that there is no generally accepted treatment for prolapse of the iris in cases of perforating ulcers. He suggests that the patient should be placed under the effect of chloroform, the prolapsed iris seized with a toothed forceps, pulled gently in different directions, and freed completely from its adhesions to the cornea by means of a fine probe. The iris is then cut off by a simple snip of the scissors. The aperture in the cornea is then covered and stopped with a piece of conjunctiva removed from the same eye, the graft, which should be twice the size of the surface to be covered, is gently pushed into the opening in the cornea with a fine probe, and the eye firmly bandaged and not examined till the third day. Details of several cases are given with apparently good results.

Fibroma of Cornea.—(Arthur Benson, M.A., Ophth. Review, Jan. 1887). The growth was first noticed as a white spec in front of the pupil of the eye about the size of a pin's head; its appearance had not been preceded by pain or inflammation. As the tumour gradually increased in size and obscured vision removal was advised. With a few turns of the trephine its margins were isolated from the surrounding cornea, and then it was dissected off with a broad needle. The tumour was dense and white, the cornea beneath being quite transparent. The wound healed rapidly, and the patient left the hospital with only a small nebula.

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ORIGINAL COMMUNICATIONS.

LATERAL CURVATURE OF THE SPINE.*

BY AUGUSTUS CLAY, M.R.C.S.,
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My connection with an institution specially devoted to the treatment of deformities gives me unusual opportunities of studying clinically many of their most frequent and serious phases. This fact has induced me to choose the subject of Lateral Curvature of the Spine for the theme of my valedictory address; and the desire to turn this occasion to practical account, will, I trust, be regarded as a sufficient justification for the selection. To treat my subject in an exhaustive manner would of course occupy more time than I have at command; but I venture to hope that the views, classification, and treatment which I shall briefly enunciate will embody much that may be found to be of practical utility. Lateral curvature has lately received more attention than hitherto, but even now sufficient importance is not attached to the prevention of this deformity, nor to the grave importance of its early detection and proper management. Three chief errors are too frequently committed in the diagnosis and treatment of these curvatures: firstly, the earliest symptoms are often ignored and put down as being merely due to growing pains; secondly,

* Valedictory Address read before the Queen's College Medical Society, 1887.

when one shoulder is observed to be more prominent than the other, the children are told that they will "grow out of it;" and thirdly, when the true state of the case is at last realised they are sent forthwith to an instrument maker, who generally supplies a heavy, cumbrous, and expensive instrument which, by itself, is often worse than useless.

Scoliosis, as this condition is termed, may be defined as a complicated distortion in which the spine forms two or more lateral curves with their convexities in opposite directions, this lateral deviation being accompanied, sooner or later, by a rotation of the bodies of the vertebra on their own axes, and being frequently associated with an exaggeration or diminution of normal antero-posterior curves. The classification that I have formulated is constructed according to the causation of the deformity, and will I believe be of value in considering the treatment of cases submitted to your care.

1. *Congenital*.—Very rare—due to faulty positions in the uterus; malformation of bones; and supernumerary halves of the vertebræ.

2. *Acquired*.—(a) Symptomatic or secondary.—Such as results from injured or shortened limb, empyæma and contractions, injuries to chest and wry-neck. (b) Idiopathic, *i.e.* originating in the spinal structures—chiefly from debility. (c) Statical.—The result of body-weight pressure in abnormal or faulty positions, where no shortening of limbs or disease exists.

Lateral Curvature is much more frequent in the female than in the male, and usually occurs between the years of 10 and 21, though it may present itself either earlier or later than this. As an illustration of its occurrence at a later period I may state that I am now attending a debilitated woman, age 41, with commencing deflection of the spine; and I have seen other cases which show that the condition not uncommonly originates after middle life, when tonicity of the muscular system is considerably lessened. The distortion occurs more frequently, however, in the young, on account of the anæmia and debility generally exhibited during sexual development, at a time when

the spine is elongated from rapid growth, and when its burden is increased by the development of the upper part of the trunk.

Girls in the well-to-do classes of society, where sedentary and enervating habits too often exist, are said to be more subject to lateral curvature than those of the poorer class. Accepting the fact that curvature *is* very prevalent amongst the higher grades of life, and feeling the responsibility of such a statement, I cannot refrain from saying that, on careful observation, I am convinced that curvatures would be found quite as commonly, if not more frequently, amongst the poor, if all the nurse girls, girls who work at the press and lathe, and men whose thigh bones have been broken were subjected to examination. The deformity in these cases is perhaps not seen to advance to such a marked extent, because the habits of the poorer classes out of their working hours are so much more salutary than those of the rich. For some time past I have been on the look out, so to speak, for commencing lateral curves in patients who present themselves for diseases quite independent of the spine. At the Queen's Hospital I have observed many such cases amongst patients suffering from "smashed fingers," and the like; and in others of flat-foot and knock-knee which have come under my treatment at the Queen's, as well as at the Orthopædic Hospital. Again, we know that flat-foot occurs in one out of three cases of spinal curvature, and this affection is unquestionably more frequent in the over-worked, under-fed, chilled poor.

Proceeding to the consideration of spinal curvature, it must be observed that nearly all deflections commence gradually, but if the cause which produces them remains unchecked the intervertebral discs become permanently flattened on one side, the articular processes and ribs are displaced or altered in shape, and as a result one set of ligaments shortens so that the curvature becomes confirmed, and permanent distortion to a certain extent is likely to persist. The most common condition is that of a dorsal convexity directed to the right, and a lumbar to the left; but the opposite condition occasionally occurs in the proportion of about one to eight. The curve that is formed subsequently to the primary is called the compensatory.

The causes may reasonably be divided into predisposing and exciting: debility (however produced), and rickets, coming under the head of the former, and faulty habits and one-sided work constituting the latter. As examples of faulty positions may be mentioned:—standing on one leg; sitting with the thighs crossed; continually inclining the body towards one side; too much horse exercise for females without the use of a reversible saddle; and many bad habits acquired at school, on which more will be said later. Under the head of one-sided occupations I may mention causes which should properly be classed as one-sided posture, for I shall attempt to show that many of the curvatures produced by the so-called one-sided occupations resolve themselves into faulty positions of the body while working, and are not due directly to the increased strength of the muscles on the over-worked side. Take, for instance, the case of a nurse girl who invariably carries the child on the same side day after day. In order to bring the centre of gravity within the points of support of the pelvis, the body leans, or is unconsciously pulled over to the opposite side to that on which the weight is carried. If a line were drawn indicating the direction of the weight of the child, it would fall on the side of the obliquely-placed chest; and in fact beyond the use of the biceps and the pectorals, very few muscles of the arm are brought into action: certainly not any which act directly or even indirectly on the spine. By this inclination of the body one long simple curve is produced, and, as there is always a natural tendency for the head to maintain the upright position, in order to affect this, a lumbar compensatory curve is formed. The same remarks apply to the faulty position resulting from the more frequent use of one arm in pulling forwards the handle of a heavy press. At the lathe again the body is constantly bending, and occasionally is thrown with great force to one side—very much the same that may be noticed in an in-elegant tricycle rider when ascending a steep incline. A similar effect is produced when the weight of the trunk is unequal, as after the loss of an arm. A very frequent factor in producing lateral

deflections of the spine is inequality of the legs from congenital conformation, from rickety curves, knock-knee and flat-foot, or from injuries. The causes are plainly seen to produce obliquity of the pelvis, with a primary lumbar curve. From the above mentioned facts, and when the numerous occupations necessitating the greater use of one arm are considered, the conclusion is inevitable that the majority of curvatures primarily commence through obliquity of the body or pelvis, and not from the "pulling out" of the vertebræ on the convex side. Cases of empyæma and contractions from severe burns or of wry-neck must be added to the list of causes of lateral curvature. Paralysis or spasmodic action of the muscles on one side of the spine is also a cause of this condition, but simple muscular contraction *per se* so far as to induce a disturbance of the equilibrium is, I believe, more uncommon than it is thought to be by casual observers. The muscular development upon the two sides of the body is seldom to be found equal, therefore I consider if the muscular theory were well founded, we should meet with a larger number of cases than we actually do.

Generally there are no subjective symptoms of commencing curvature beyond the feeling of lassitude, a sense of fatigue after even moderate exertion, and the relief gained by recourse to frequent sitting or "lolling" postures, or the recumbent position. As a rule the spinal deflection begins in a very gradual manner, and without at all attracting the notice of the patient or her relatives, until some obvious deformity or "growing out" of the shoulder presents itself. Pain may be present at the outset, but more frequently no complaint of pain is made until the distortion has advanced to a distressing stage. It is a good rule to remember that pain or weakness in the region of the back, especially in the young, calls for a most careful examination of the patient for curvature. It is a serious evil to dismiss the symptom by saying that it is a "growing-pain" or one of a rheumatic nature. I have now under my care a young lady with great deformity and pain on the right side of the back, who was treated for *eighteen* months by Metropolitan Surgeons for liver complaint. To

examine patients thoroughly the body should be denuded sufficiently to expose the iliac crests, and to have the upper part of the gluteal cleft visible. The boots must be removed, and the patient should stand somewhat in the drill position, but the attitude must neither be stiff nor forced. A general survey of the back should then be made, special attention being directed to the comparison of the shoulders, the angles of the scapulæ, the loins, and lastly, the iliac crests. The anterior chest wall should be inspected, and finally, there should be an examination of the legs to detect one-sided weakness, shortness in length, knock-knee, or flat-foot. It is useful to bring more prominently into view the spines of the vertebræ, either by rubbing the skin over them, in order to produce a little redness, or by pencilling them out separately; but too much reliance must not be placed on their position, for it is now positively known that the vertebral spines do not always indicate the situation of the bodies to which they belong. As I stated in my definition at the commencement of this paper, there is after a time a transverse rotation of the bodies on their own axes; the apex of each spinous process twisting towards the concavity of the curve, and the transverse processes projecting (obviously in severe cases) in the direction of the convexity, those vertebræ being most rotated which are in the centre of the curve.

There have been many diverse opinions expressed by distinguished authorities in order to explain this horizontal rotation, but my object being practical, these theoretical views will not come within the scope of this paper. I have diverged here to point out that too much importance should not be attached to the position of the spines, and secondly in order to explain two prominent symptoms or signs now to be described. In many cases little or no deformity can be noticed in the erect posture; consequently the patient should be directed to bend forwards with the arms hanging loosely down in front. By this method the scapulæ are drawn forwards and the ribs posteriorly are left uncovered, when their angles and adjacent parts are found to be abnormally convex, and on a higher level on the

side corresponding to the dorsal curve. This increased convexity causes the well-known prominence of the shoulder, which is popularly thought to be "growing-out." Cases have come under my notice where no deviation of the spine could be observed—the shoulders have been on the same level, and likewise the hips; but on placing the patient in a low chair and looking down from above and comparing the sides, want of symmetry, caused by the rotation, has been readily detected. On the other hand we find in delicate subjects slight simple or *true lateral* curvatures which can be made to disappear in the recumbent position, or during extension either from the head or arms. These are incipient curvatures, and should never be treated as "weak backs" by the employment of stiff, unyielding, heavy instruments. When the patient is in the stooping position above described the lower part of the back must be inspected; it will then be found that the lumbar muscles protrude on the side opposite to the dorsal curve, owing to the lumbar convexity and the backward rotation of the transverse processes in this region. But before these processes can be actually detected the erector spinæ muscle will, on palpation, be found to indicate a greater sense of resistance. Attention should now be paid to the gluteal cleft, as an examination of this affords a ready means of determining whether obliquity of the pelvis exists or not. If obliquity be present the lower iliac spine will correspond to the convexity of the lumbar curve. Directing attention now to the front of the chest, the same inequality in the heights of the shoulder is noticeable, and in subjects of the more common deformity of the right dorsal curve, the left side projects unnaturally forwards, the ribs are lowered, and the breast retaining almost entirely its normal relation to them, is found on a lower level on this side than on the right. This is frequently the only sign that induces young girls to seek advice. When the disease has advanced to such an extent as to involve the thoracic and abdominal cavities, the respective viscera become sooner or later affected, and their functions deranged. Debility, emaciation, and pallor ensue: dilatation of the heart,

uterine disorders and hæmorrhages are produced. Lung troubles, such as emphysema, bronchitis, and shortness of breath, are complained of; but even in the most exaggerated cases loss of motion and sensation in the limbs is a very rare complication.

Before entering upon the various methods of treating this deformity, allow me to say a few words on the important subject of its prevention. I feel that much of what I desire to say may be deemed supererogatory as being well known to you; still it cannot be too often or too strongly impressed upon the minds of parents or professional men, that the daily habits of many children, and the unsuitable occupations of adults, are distinctly training them to become stunted in their growth and crooked in their backs. I do not wish it to be assumed that I am travelling from one extreme to the other when I urge that children should not be kept too warm and heavily clothed, and I consider it of great importance to accustom them to sleep on mattresses. These never acquire too much heat, and as they do not yield to pressure, the child is compelled to lie straight and extended. Parents seem to try to make their children as precocious as possible, and if they can induce them to walk before those of their neighbours, they imagine a great triumph has been achieved. Too much exercise for very young children should be avoided, and there should be no mental forcing. If the brain is over taxed too early in life it is sure to be at the expense of the bodily growth. From about the end of the second year, in addition to proper food and cleanliness—bodily exercise becomes one of, if not *the* most important, parts of physical education. Our school-rooms are too often responsible in a large measure for the production of many a lateral curve. The children at their books are confined in awkward positions, and frequently in corrupt atmospheres. When sitting the children are found to fall into various twisted attitudes, no backs are attached to the forms, and the legs are allowed to dangle about instead of resting firmly on a foot-board. The desk should never be flat, but should slope at an angle of 20° for writing and 40° for reading, and its height

should be proportioned to that of the children and the benches they have to sit on.

Children should not be allowed to stand for a long time while repeating their lessons, nor should they be required to carry such a formidable number of books, invariably on one arm, backwards and forwards to school. Long music lessons, with no support to the back, and the long fatiguing meaningless walks, where the same beaten track is traversed day after day, and where the younger and more delicate children have to go the same distance, and at the same pace as the older and stronger ones, are productive of much harm. Here a distinction must be clearly made between *exercise* and *recreation*, there is no recreation in long and formal walks under disciplinary inspection. Instead of this, the children, male and female, should be allowed to spend a great part of the day in regulated gymnastic exercises, and in sports and games of all kinds. Let them "romp;" and the sooner parents dismiss the idea that lively, healthy, vigorous exercise betrays vulgarity, the sooner will the body become more graceful and active, and will, in the surest manner, guard against faults in growth and formation. In swimming we have an excellent means of exercising the dorsal muscles, but besides the direct action upon the spinal structures, its usefulness in other ways is incalculable.

Proceeding from these general observations to questions of treatment, it will be advisable in attempting to lay down a few rules, to divide cases temporarily into the Incipient and Confirmed; but it will be impossible in the time at my disposal, to do more than indicate the broader markings of practice. Before commencing any remedial measures, the necessity of ascertaining in every instance the precise pathological cause of the disorder and effecting its removal, is obvious. Treatment in both of the divisions mentioned above, to be really productive of benefit must as a rule be both general and local, for a recourse to one mode to the exclusion of the other will oftentimes be unavailing.

Let me take first the incipient class, by which I mean cases

where the curves can be readily removed by recumbency or extension, and where little or no rotation exists. Pain, lassitude, or inability to remain long in the upright position, are generally the signs that lead parents to consult medical men as to the condition of their children. A large number of such curvatures are due to debility, and come under the idiopathic division of my classification. When we have evidence that the deflection is the result of debility, the general health must be invigorated by those means which we all understand, such as tonics (especially phosphate of iron and cod-liver oil), fresh air, change of scene, and good, plain, nutritious, digestible food.

The local treatment of incipient curvature brings under consideration:—*Exercise, Rest, Local Stimulants and Supports*. I will take these in their order, beginning with exercise.

Much attention has been given by practitioners to forms of remedial exercise. Prof. Delpech of Montpellier, was the first to adopt the scientific application of gymnastics in the treatment of spinal deformities which are not due to caries. Ling's system of Swedish gymnastics was brought prominently before the profession in 1813, and has been applied recently more directly to the cure of curvatures by Dr. Eulenburg of Berlin, Dr. Dally of Paris, and has been forcibly impressed upon the surgical mind in England by Dr. Roth and his son, Bernard Roth. All calisthenic exercises, especially at first, must be very simple; should be practised with great care and watchfulness on the part of the medical attendant; and no special apparatus should be employed. We must remember that we are dealing with weakened ligaments and flabby muscles, therefore it would obviously be wrong to recommend movements calculated to impose undue strain. In these cases I usually order a *systematic* course of dumb-bell exercises, and when the various movements characteristic of this form of drill are carefully considered, it will be found that most of the exercises recommended in Ling's system are accomplished. The weight of the dumb-bell should

be cautiously regulated to the strength of the patient, and where enfeeblement is well marked, the exercises should be carried out with corks for the palms as used by athletes when running. As the patient's strength and vigour are returning manual suspension from a horizontal bar should be practised, care being taken not to have the elbows completely extended; neither should the body hang a dead weight, but swinging in all directions should be encouraged. After a certain amount of practice in gymnastics, going hand over hand up and down a slanting ladder will be found a most valuable form of exercise. The spinal muscles can also be improved in tone by exercises conducted while sitting or lying down. Of these I may mention one or two. The patient may lie in the prone position flat on the floor or table and then raise the head and upper part of the trunk as high as possible from the ground without moving the pelvis, the elbows being extended and the hands on the floor at first, but afterwards the extension should be conducted by the aid of the spinal muscles alone. While in a similar position, the legs, one at a time, should be lifted from the floor or couch. The erector spinæ of the same side contracts in order to steady the pelvis while the gluteal muscles extend the leg. Two very useful exercises may be carried out on a narrow table, or if this be not at hand, on a very inexpensive apparatus. Two long planks about eight or nine inches broad are placed together, the ends fixed on an elevated and firm resting place. The patient sitting astride, the surgeon gently pushes him forwards by a hand placed on the head, the patient somewhat resisting the impulse. As soon as the trunk is flexed to an angle of 50° the patient stops and returns slowly to the previous erect posture; the surgeon in turn resisting with the hand as before. The other exercise is that which is called "dry swimming," the patient lying alternately on the back and chest while using the limbs as though in the water. As the back becomes stronger only one board should be used. All exercises, it is most important to keep in mind, should be practised with discretion, being carefully regulated

to the patient's strength, for I feel that many failures of treatment are due to the fact that the individual cases are not sufficiently studied and dealt with upon their own special conditions. Five minutes' practice three times a day should be the limit at the commencement of the treatment. The length of time should be gradually increased, but should never be carried to such an extent as to induce the least degree of fatigue. It is of great importance that the breath should not be held while going through these exercises. Therefore, until the patient has become sufficiently educated to continue the full respiratory movements while her attention is directed elsewhere she should be made to count audibly. Two papers on the breathing capacity of the lungs, recently read by Mr. G. W. Hambleton before the Anthropological Section of the British Association, may be perused with profit.

Rest.—Entire recumbency, that is, lying down for a period of *twelve* or *eighteen* months, has had many advocates; but it clearly has the effect of weakening already feeble muscles; it is injurious to the constitution; and therefore must once for all be dismissed as unpractical in the treatment of all curvatures not due to disease of the bones. The patient should recline in an easy chair or lie down immediately the upright position of the spine cannot be maintained with perfect ease, and after every exercise, recumbency is imperative, but this should not be prolonged for more than an hour. The "Prone Couch," introduced by Dr. Verral in 1822, is very useful for the purpose of partial recumbency, as the patient can use the arms comfortably while at the same time resting the spinal structures. *Local stimulants*, in the form of "muscle stroking," "muscle beating," cold douches, and linaments (especially Lin. Camph. Co.), are very useful aids to the treatment.

Spinal Supports, as a rule, must be strongly interdicted in these incipient cases, but where the patients are compelled to go about their work in the usual way, and where there is much pain, a poro-plastic jacket or a light divided Sayre may have to be

used. I am attending a young lady, who is chief clerk in one of our principal railway stations, who has to stand a greater part of the day as she finds sitting inconvenient in managing the large ledgers, and who finds it quite impossible to do so without some support. The patient must be firmly told that these jackets are not curative and that the sooner they are left off the better. The cuirass should be taken off at night and when going through the prescribed exercises.

The principles which have been elucidated in describing the methods of treating incipient curves apply equally to the management of those cases, at the commencement, where the deformity is well established. The enfeebled muscles require just the same care and treatment at first, but after the various simple exercises already mentioned have been gone through, special movements must be adopted designed to act more or less directly upon the curves. The success of the treatment depends upon two factors :—one being the amount of structural alteration, such as the wedge-shaped intervertebral discs and vertebræ, and other osseous changes ; the other, the intelligent capacity of the patient to modify the perverted muscular sense. The medical man should endeavour to replace his patient in the normal position ; and in the more exaggerated cases this may be aided by certain positions of the arms—most improvement being generally obtained by directing the right arm vertically upwards, and the left arm at right angles to the body. This is called the “key note” position, and is that position which should be maintained while performing most of the exercises. It is surprising to note how difficult it is to induce patients to believe that the changed position in which they are placed is really an improvement of their condition ; and it is still more difficult to persuade them to retain this best possible position. In order to conquer this false mental impression I draw their attention to the fact that few persons wear their hats exactly straight ; and if the patient herself (supposing her to be a woman) happens to be one of the number, by putting the hat on as it should be worn, she imagines that it is on one side and feels uncomfortable. If she

attempt to put the hats of others straight she will have their ideas explained to her in the same strain. This, to my mind, is the best and simplest comparison I can offer as to the impression perceived when trying to re-educate the patient's muscular sense, and as an example of what may be done I may mention the difficulty experienced by the round shouldered recruit upon first entering the ranks to maintain the upright attitude, but after a while his muscles are so educated as to act independently of the will. In dealing with this condition every manifest irregularity should be carefully pointed out, not only to the patient herself, but also to her friends, whose interest should always be enlisted in the treatment, as they are often able to draw the patient's attention to faulty habits in sitting and lying down. When the desired alterations in the outlines of the body are understood by the patient, she should practise *straightening* the spine 5 or 6 times a day in front of a looking glass. The eyes should be closed until she imagines that she has placed herself in a more erect position, then they should be opened and her judgment of the actual position critically scrutinised. The attitude when reclining, or lying down, should be inspected by means of a hand glass. Perseverance is necessary for a time, but the influence of the will changes the intentional movements into habitual ones—the more intelligent and anxious the patient the quicker is this result attained. An exercise which is supposed to have an untwisting action may be described as follows:—The patient is seated on a stool, and a hook is affixed to the wall on each side of her; to these hooks strong elastic cords with handles are attached; the right arm crossing the *front* of the body pulls on the cord on her left, while the left arm passes *behind* the trunk and grasps the handle to her right, deep respiration being carefully continued during the process.

Another exercise of much benefit consists of bringing the patient's body over the end of a table—an assistant firmly holding his legs—and instructing him to alternately flex and extend the body at the hips, whilst the surgeon in turn resists the patient's efforts.

Here it may be usefully observed that the long list of mechanical contrivances for this condition is not only a reproach to surgery, but a source of mischief and embarrassment. Extension couches, thoracic cradles, slanting seats and other such things are wholly unnecessary, and should be put aside as being mostly useless and often dangerous by retarding or even preventing a cure. From the use of the so-called spinal supports I have seen nothing but harm result, more especially in the use of those with the unpractical idea of having crutches for the armpits. If a patient cannot or will not rest sufficiently, and if the scoliotic spine be sufficiently movable, as proved by extension, a poro-plastic, or a divided Sayre's jacket may be used ; but it must always be put on and laced up in an extended position, and should be re-moulded or re-applied monthly. Finally, as a general observation, I would add that to do justice in the treatment of lateral curvature of the spine, the best course is to combine in various proportions the different plans I have briefly described, for as I have already said, treatment is brought into disrepute by failures really from the misapplication of particular methods, and from the pertinacity with which the advocates of each "system" insist upon the employment of one plan of treatment for all cases.

In closing this paper I will ask you to condone its defects by remembering that my purpose has been simply to give some practical hints founded upon my own observations and practice ; and if I have succeeded in making clear any doubtful points, I shall feel that my purpose has been accomplished, and that I have done something towards what must always be the aim and the chief honour of our profession—namely, alleviating suffering and effecting cures.

NOTE ON THE USE OF COLCHICUM IN GOUT.

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THERE can be no question as to the speedy relief afforded by colchicum in certain cases of acute gout, a relief so marked as to have earned for it, in the opinion of some, the rank of a specific. Nevertheless, many sagacious practitioners abstain from its use as far as possible, believing that it does more harm than good in the long run; and all agree that at least it is a drug which should always be given with circumspection. The question is an important one, and well worthy of a brief consideration.

Colchicum cannot certainly be regarded as a specific, for in many cases it fails altogether; and there can be little doubt but that gouty paroxysms recur more speedily and more frequently in those who have resorted to the drug than in those who have abstained from it. In some respects it might appear to have a relation to gout like that of the salicyl compounds to acute rheumatism, but the writer is convinced that there is no real resemblance, and that there is no evidence whatever that colchicum is able to limit or control the formation of the *materies morbi*.

Personally, the writer strongly inclines to the view that the palliative effects of colchicum are mainly traceable to its action as a vascular depressant. That colchicum possesses this property, when internally administered, appears to be fairly clear. The whole surface of the body after a full dose becomes flushed by dilatation of the cutaneous arterioles, active perspiration is excited, the carotids throb, and the frequency and force of the pulse is reduced. It requires no elaborate manometer or kymograph to show that under such circumstances the blood-pressure must of

necessity be reduced. That a vascular depressant is competent to give marked relief to the pains of acute gout is clearly shown by the action of nitro-glycerine, nitrite of amyl, and nitrite of sodium, which the writer has satisfied himself by repeated observation are scarcely inferior, if at all, to that of colchicum. Now these drugs are pure vascular depressants. Again, veratria, another vascular depressant, is supposed to be the chief ingredient in Laville's well-known nostrum.

In early attacks of acute gout, occurring in plethoric subjects (and it is notorious that in these cases, colchicum yields most satisfactory relief) the pulse is hard and tense, and the general blood-pressure is increased, as shown by the accentuation of the second sound over the aorta. In the neighbourhood of the affected joint the vessels are dilated, and under these circumstances the blood-pressure in the capillaries must be locally very much increased, a state of things which is largely responsible for the pain. But with the administration of a vascular depressant a rapid change takes place. The action of the heart is reduced in force and frequency, the systemic arteries throughout the body are relaxed, the general blood-pressure falls, and a marked relief of the circulation in the inflamed joint necessarily occurs, and with it—relief of the pain.

It is objected that, if this were the action of colchicum, it ought to subdue all inflammations equally, whatever their nature, which, it is said, is contrary to experience. We must remember, however, in the first place, that the pain of the early stages of acute gout, like acute rheumatism (though not to the same extent), is severe out of all proportion to the local inflammatory changes. For what reason this is so, we need not now pause to enquire; but at any rate we may conclude that the pain is largely due to simple functional disturbance of the local vascular and nervous mechanisms in the neighbourhood of the joint. Again, it may be observed that the relief afforded by colchicum is in inverse proportion to the amount of local inflammatory mischief, and for this reason it is far less applicable in chronic than in acute gout. It therefore seems a mistake to make a

sweeping assertion that colchicum "will abolish gouty inflammation as if by magic,"* for in proportion as those changes are coarse and well-marked, the influence of the drug diminishes. It would, in the writer's opinion, be much nearer the truth to say, that in the early stages of acute gout, where the vascular phenomena are greatly in excess of local inflammatory changes in the tissue-elements, the former are so promptly relieved by colchicum, that the latter very quickly subside. The writer ventures to say, that when other forms of inflammation are found to present the foregoing conditions, the pain will be equally amenable to colchicum as in gout.

It is not claimed that colchicum owes its influence entirely and exclusively to the relief of the circulation, though it is contended that this is its chief action. For instance, the excitement of cutaneous perspiration may very probably enhance the therapeutic value of the drug, by assisting in the elimination of the *materies morbi*, at a time when the activity of the kidneys is reduced below the proper standard. Moreover, Lauder Brunton tells us that it tends to paralyse sensory nerves. If this be so, the sensitiveness of the affected part may in some degree be lessened.

This view of the action of colchicum may also help to explain the increased liability to recurrence which is induced, according to good authorities, by the use of this drug. The administration of vascular depressants always leaves behind an amount of general prostration and want of tone, in direct proportion to the largeness of the dose, and the length of time which it has been employed. But such conditions imply disturbed metabolism, and nervous depression, which are known clinically to be most important factors in the determination of a gouty attack. Moreover, since the blood-pressure takes some considerable time to recover its normal standard, and since the activity of the kidneys is in inverse ratio to the blood-pressure, it is more than probable that proper elimina-

* Ringer, *Handbook of Therapeutics*, p. 411, Seventh edition.

tion is interfered with, and that the gouty poison is accordingly only imperfectly and slowly removed from the system.

From the above considerations, the following practical conclusions may be gathered :—First, that colchicum should be avoided in all cases attended with debility and cardiac feebleness; and that its use should be confined to early attacks of a sthenic type, and a pulse of distinctly high tension. Also, from the liability to depress the system, and to interfere with renal elimination, its administration should not be continued for a longer period than is absolutely necessary for the relief of pain. In order to prevent the employment of a larger quantity than is necessary for this purpose, it is desirable to give the drug in moderate doses, repeated at short intervals, rather than in a large single dose. In this way, the action may be kept more perfectly under control. Lastly, since there is no evidence to show that colchicum has any *curative* influence, but rather that, in spite of the relief often afforded, it tends to encourage recurrence, it is safer to avoid its use altogether when possible; and under no circumstances should a patient be allowed to resort to the drug, except under medical supervision. Our use of drugs for therapeutic purposes is, or at least, ought to be, largely dependent on current views as to pharmaco-dynamics, and it is with the intention of helping to place the use of colchicum on such a basis, that the above contribution is made to the columns of this review.

ON THE SO-CALLED MALIGNANT PUSTULE
OF EXTERNAL ANTHRAX.BY J. T. J. MORRISON, B.A., F.R.C.S.
CASUALTY SURGEON TO THE QUEEN'S HOSPITAL, BIRMINGHAM.*(Concluded from page 123.)*II. ÆTIOLOGICAL (*Continued*).

5. *Inoculation of Animals with Bacilli Anthracis*.—The allusion to inoculations in the preceding sub-section may serve as a fitting introduction to a more detailed consideration of the experimental evidence bearing on the causal relationship between the germ and the disease.

Pollender, the first discoverer of the bacillus, refrained from committing himself to any definite opinion as to its derivation and significance. Brauell, who made the discovery independently a few years later, formulated the proposition that the bacilli did not constitute the poison of anthrax, nor were they its carriers, though they gave valuable indications for diagnosis and prognosis. He failed to detect the rods in the blood of animals convalescing from anthracæmia, though they were constantly present in the blood of cases about to terminate fatally. By way of experiment* he took blood not displaying the mature organisms, and with it inoculated two foals, producing in them genuine anthrax, their blood yielding on examination abundance of bacilli. This observation, which was corroborated by Bouley and others, appeared to be a destructive argument against the theory of Brauell's contemporary, Davaine, who contended that the germs were the active agents in the propagation of the disease. But this was more than twenty years ago. Improvements in optical apparatus and in laboratory technique have cleared up the disputed points, and vindicated the soundness of Davaine's position. Bollinger,† besides G. W. Müller, Schuster, and others, has demonstrated that infectious blood in which the rods cannot be discovered, nevertheless contains the immature germ in the form of spores.

* Virchow's Archiv, B. xxxvi., 1866 † Zur. pathol. des Milzbrandes, p. 48.

Klebs showed that filtered blood was innocuous; it may hence be inferred that the virus depends on insoluble concrete particles, and there can be no doubt that these particles are anthrax bacilli or spores. Koch, Klein, Greenfield, Pasteur, and others have isolated the organism, and made cultivations in suitable nutritive media outside the body. The inoculation of the blood of animals with such cultivations produces typical anthrax.

Dr. Greenfield detected the rods in the serum from a 'malignant pustule' on the arm of one of Dr. Bell's Bradford cases, and by inoculation of a guinea-pig with this serum he caused anthracæmia, which proved fatal in fifty-three hours. Numerous confirmatory experiments of a like kind have been published.

Koch finds that there are marked differences in susceptibility to the poison amongst different animals. In guinea-pigs the bacilli propagate freely—so much so that the number of rods may exceed the number of corpuscles; rabbits are less susceptible; and mice still less so; whilst dogs, and the carnivora generally, are peculiarly refractory to the germ. Man also, does not readily yield to infection.

In summing up the evidence relating to inoculation, it may be safely asserted that, given a susceptible animal, and true anthrax bacilli or spores, the successful inoculation of the blood of the animal with such germs will certainly be followed after a brief incubation by an attack of genuine anthrax.

6. *Infection by the agency of Insects and by Diseased Food.*—Montfils (1776) declared that anthrax was communicated to man by the bites of flies. Davaine and Raimbert have established experimentally that the proboscis, feet, and dejections of the common house-fly, and, of the blue-bottle, serve as efficient vehicles for the transmission of the disease.

Bollinger* found the organisms in the stomach and intestines of horse-flies collected from the body of a steer dead of anthrax, and, by inoculation, he communicated the disease to two rabbits.

* Ziemssen's *Cyclopædia of Medicine*, Vol. III., p. 383.

Infection, by eating diseased food stuffs is not common. In this respect man resembles the carnivora, though insusceptibility is not so complete as in the latter. It is alleged that milk and butter from diseased animals possess virulent properties.

Professor James Law of Cornell University, U.S.A., asserts† that animals have perished after licking frozen anthracic blood.

Cooking the food does not always destroy the germs.

III. CLINICAL.

The third and concluding division of the paper will be devoted to the consideration of the clinical features of 'malignant pustule,' embracing its symptomatology, differential diagnosis, treatment, and prognosis, each of which will be briefly discussed. Finally, an illustrative case will be reported.

1. *Symptoms.*—i. *Local.*—Following inoculation of the skin with the virus, there is a period of incubation, usually of several days' duration, but varying from a few hours to fourteen days. Then there appears on the spot a red speck with a dark centre, like a fleabite: this may be preceded or accompanied by more or less itching.

Within twelve or fifteen hours a papule capped with a small vesicle forms, and gradually enlarges. The vesicle soon bursts, as a result of increasing distension or scratching, disclosing in its floor a brownish patch of skin, which speedily becomes a black, dry eschar. The surrounding integument meanwhile swells and reddens, and in less than twenty-four hours is studded with a crop of vesicles each as large as a hemp-seed.

The appearance is now highly characteristic: there is a central depressed, black eschar, somewhat less in diameter than a three-penny-bit, encircled by a wreath of yellowish vesicles on a tumid, inflamed base, quickly merging into healthy skin. Thus are produced the three zones mentioned above (p. 121). As the gangrene spreads centrifugally the first ring of vesicles falls into the eschar, and another series develops. By the third or fourth day, swelling and œdema have extended for a considerable dis-

† Report to American National Board of Health, 1880.

tance from the inflamed focus, which now feels hard and solid, constituting what the French have designated the *bouton*. The adjacent lymphatic glands become enlarged and tender, the lymph vessels leading to them showing as red lines.

The eschar rarely increases beyond the size of a florin (it is usually more or less circular in outline); frequently it is not larger than a split-pea. In thickness the eschar is not considerable, being limited by the true skin.

The vesicles discharge an abundance of clear, straw-colored, or reddish *serum*, but no *pus*; indeed, it is a remarkable and diagnostic feature that no pus appears until the eschar begins to slough out. This event occurs in favourable cases in a fortnight or three weeks. The writer has seen the serous exudation from the vesicular zone run in a slow stream down the cheek and drip over the border, reminding one of what is observed when a nine-days-old vaccine vesicle is punctured.

It is noteworthy that throughout there is little or no severe pain, and that the temperature of the part is usually but slightly raised.

ii. *Constitutional*.—An early subjective symptom is chilliness followed by rigors and headache, with, not uncommonly, retching and vomiting. Muscular debility ensues, and this is associated with feelings of wretchedness and depression of spirits. Pyrexia is not, speaking generally, a prominent symptom, and is often absent. It will be seen, therefore, that in the early stages of an ordinary case, the general condition does not betoken the gravity of the disease, and hence patients are apt to continue at their occupation without seeking advice.

In unfavourable cases, urgent dyspnoea causes great alarm and distress; cyanosis is then an attendant symptom, and sometimes cough. Or there are cold sweats, diarrhoea and collapse; the chief stress of the poison falling upon the intestines rather than the lungs.

In yet another group of cases, septicæmic symptoms are conspicuous. The temperature is high, but is subject to fluctuations, and different records are obtained in the axilla, mouth and rectum; there are exhausting sweatings, diarrhoea, and severe

pains in the limbs ; the pulse and respirations are hurried ; and confusion, delirium, and occasionally clonic spasms, usher in a fatal termination. In these cases secondary anthrax nodules are usually found *post mortem* in the stomach, intestines and lungs ; together with hæmorrhages in the mesenteric glands, meninges of brain, and elsewhere ; the spleen is large and often diffuent ; the blood is tarry, abnormally fluid, and with the hæmoglobin of the red corpuscles in partial solution.

In fatal cases, death takes place in from four to eight days from the onset of constitutional symptoms.

2. *Differential Diagnosis.*—i. *From Malignant Carbuncle of the Face.*—In this there are usually yellow spots of suppuration here and there on the inflamed part ; the pain is severe ; constitutional symptoms are early and grave ; the adjacent veins are implicated ; and the characteristic eschar and vesicles are absent. Further, the necrosis advances to the surface from below, instead of spreading superficially.

ii. *From Glanders.*—Here the cutaneous lesions are multiple pustules or pemphigus blebs ; the nasal mucous membrane is commonly implicated ; and there is a history of infection from a horse.

iii. *From Simple Poisoned Wound.*—This usually presents one large, painful pustule, or an angry-looking focus, whence the red cords of lymphangitis pass to enlarged and tender glands. The vesicles are conspicuously absent.

iv. *From Noma.*—This begins on mucous membrane, commonly of the mouth ; it is associated with a zymotic disease such as measles, and with profound cachexia and extreme pallor ; the sloughs are more extensive, and withal, soft and very foul.

v. *From Primary Syphilitic Chancre* the diagnosis is not always easy, for here a large scab is formed on a red, indurated base, and the soft parts and contiguous glands are swollen. The pain, however, is usually considerable, while the development is slow. In 'malignant pustule,' the comparative painlessness of the swelling, and the occupation of the patient are points of

importance. Lastly, in this, as in all other cases where the diagnostician is likely to be puzzled, the absence of bacilli or spores on microscopical examination will help to resolve the doubt.

3. *Treatment.*—When once the nature of the disease is understood, the indications for treatment appear obvious. The local infection, and the definite localization of the malady in the early stage, clearly demand a local remedy. And this must be applied promptly and thoroughly if it is to be effectual. After an interval of time, longer or shorter, the limits of the virus become coterminous with the organs of blood-circulation, and then recovery must as a rule be despaired of. In one word, then, the principle of treatment is destruction or removal of the local lesion. At Guy's Hospital very satisfactory results are yielded by excising the affected piece of skin with the knife, cutting at least a quarter of an inch outside the vesicular zone, and as deep as the subcutaneous fat, some of which is also removed. The bleeding surface is then variously treated by the different surgeons, one or other of the following escharotics being used:—caustic potash, pure phenol, nitric acid, zinc chloride, and Pacquelin's *thermo-cautère*. After the bleeding has been checked, any simple dressing may be applied.

No doubt other forms of destruction may succeed, as for example, the application of caustics after preliminary incisions; but these methods cannot be relied on with the confidence attaching to the one advocated. Bourgeois recommends caustic potash; but in spite of the use of this remedy, in some of his cases the disease appears to have spread.

The 'Dallack' doctors of Constantinople have a great reputation for curing the malady, their routine treatment being excision or actual cauterization.

It is encouraging to remember that energetic destruction of the primary focus often proves successful even when the adjacent glands are affected, and symptoms of toxæmia exist. It would seem, therefore, that at least the chief source of the actual virus is within or immediately around the 'malignant

pustule' itself; and that the system can eliminate a certain amount, providing the supply is not maintained.

In suitable cases internal remedies may be exhibited with great advantage. Thus where symptoms of blood-poisoning are present, quinine and carbolic acid are indicated, and may be given to the extent of forty grains of the former, or ten of the latter *per diem*. Preparations of mercury are also valuable. Diffusible stimulants, as ammonia, alcohol, and ether, must be used according to the requirements of the particular case.

With regard to diet some very important and interesting information has been gleaned. Mr. Spier, in his observations on the cases amongst the Bradford woolsorters,* calls attention to the apparent aggravation of symptoms after the ingestion of vegetable food-stuffs. He was led to conclude that the consumption of such aliments greatly favoured the development of bacilli. It is remarkable that the Turkish 'Dallack' doctors prescribe a diet of caviare and bread, and a little spirit, vegetables and fruit being considered specially dangerous.

In this connection the experiments of Prof. Feser of Munich, are significant. He found that rats fed exclusively with beef and horse-flesh could not be inoculated with anthrax; whereas others fed only with bread could be inoculated with ease.

These facts coincide with the well-known insusceptibility of the carnivora.

As to prophylactic inoculation, little need be said. The *odium pathologicum* which has been imported into the discussion, makes it the less inviting, and in any case it is much more a Continental than an English question. It would be clearly undesirable to introduce the virus of anthrax into a country which at present enjoys comparative immunity. On the whole the weight of evidence certainly proves that the inoculation of animals with attenuated cultures of the bacillus, confers at least a temporary immunity.†

* Report of Medical Officer to Local Government Board, 1881.

† Micro-parasites in Disease: New Syd. Soc., pp. 572, 575.

4. *Prognosis.*—It is difficult to collect reliable statistics as to the occurrence and fatality of 'malignant pustule,' inasmuch as cases are so frequently not diagnosed. Bollinger estimates the mortality at not less than 30 or 40 per cent. Under efficient treatment, however, much better results are obtained. Nicolai lost only 11 out of 209 patients, *i.e.* 5 per cent. There are few diseases in which so much depends on sound diagnosis and treatment. Provided bold measures are adopted before profound constitutional symptoms declare themselves, the prognosis is decidedly good. In the series of Guy's Hospital patients, out of 24 treated by excision, 21 recovered.

CLINICAL REPORT OF A CASE.

The case which is here narrated came under the writer's close observation during his house-surgeoncy at Guy's Hospital, and he is indebted to the kindness of his former teacher, Mr. H. G. Howse, for permission to publish the notes.

Edward W., æt. 37, was admitted into Naaman Ward under Mr. Howse, on 28th July, 1883. He is employed at a warehouse for dry hides in Bermondsey; a fellow-workman died of 'malignant pustule' in Guy's Hospital last February. Ten years ago he was a hard drinker; about that time he had an attack of lead-poisoning. Of late he has been very steady, and his general health has been excellent. He is married and has five children.

History of Present Disease.—On 23rd July, patient noticed a pimple on his right cheek; at first it caused no pain; but by the 27th it had got larger and 'burned.' Clear discharge began to ooze on the morning of admission. The only treatment has been bathing with warm water.

Condition on Admission.—He is a healthy-looking man; says he has no pain. On the right cheek in a line from meatus of ear to angle of mouth is a swollen patch of skin raised about one-tenth of an inch above the general surface, and measuring half-an-inch across. It presents a black, dry eschar one-eighth of an inch in diameter, having a slightly depressed centre and raised edge, from beneath which clear

serum is oozing and searing the cheek. Surrounding the eschar is an area of vesication, as of one large annular vesicle. Outside this the skin is dark-red in colour, and hard to the feel; the outermost zone is swollen and infiltrated, though not positively brawny; this is bounded by a line drawn through meatus of right ear, running below jaw for about two inches, thence up to angle of mouth, onward to right nostril, and back to right outer canthus. There are three enlarged, tender glands beneath jaw.

Tongue red at edges, furred in the middle. Bowels were open loosely at 6-30 a.m. to-day; he frequently has a kind of diarrhoea. Pulse and respiration normal.

July 28. *Operation at 10 a.m. under chloroform.* TEMP.
The 'pustule' was excised down to the subcutaneous fat, the incision passing a quarter of an inch wide of the raised patch all round. The bleeding surface was rubbed over with a stick of caustic potash. Carbolic gauze dressing was applied, and the patient removed to bed.

July 29. Dressed: slight sero-sanguineous discharge. Ordered Pil. Col. c. Cal. gr. x., h.s.s., and Haust Sennæ 3 iss. cras mane. To take milk and ice.

July 30. Very comfortable. Low diet.
Aug. 2. Going on well. Rep. Pil. Aper. Middle diet.

Aug. 3. Wound granulating healthily. General health very good.

Aug. 5. Got up to-day.

Aug. 16. Has been steadily convalescing; wound covered with healthy granulations, and has a healing edge; dressed with Ung. Resinæ. General health excellent. Discharged 'cured.'

In conclusion it should be mentioned that ordinary *bacilli anthracis* were found on microscopical examination of the excised skin.

REVIEWS.

ABDOMINAL SURGERY.*

A VOLUME specially written on the surgery of the abdominal cavity was needed badly. This is the first attempt which has been made to meet the want, and so well does it fulfil the requirements of the case that we doubt whether there will be room for another book on the same subject for many years to come. We have been delighted during our study of the volume by the author's striking impartiality, by the accuracy of his descriptions, by the graceful flow of his language, and by the thoroughness—without prolixity—which characterises each of the chapters into which the work is divided. We rejoice that a provincial surgeon has undertaken the task of producing a volume upon a branch of work which has received so much attention and so many benefits at the hands of surgeons outside the metropolis.

The work is divided into twelve sections; the first on the "Diagnosis of Abdominal Tumours;" the second on "Abdominal Operations Considered Generally;" and then follow in separate chapters, Operations on the Ovaries, Fallopian Tubes and broad Ligaments; the Non-gravid Uterus; the Gravid Uterus and for Ectopic Gestation; the Stomach; the Intestines; the Kidneys; the Liver and Gall Bladder; the Spleen; the Pancreas; and finally, operations which cannot be classified. The work concludes with an exhaustive Bibliography, for the "incompleteness" of which the author need not have apologised.

We are afraid to criticise the work in detail, lest our expressions should become tedious, and possibly fulsome, so little have we to find fault with and so much to praise. At the end of the first section is a schematic arrangement

* Abdominal Surgery. By J. Greig Smith, M.A., F.R.S.E., Surgeon to the Bristol Royal Infirmary. London: J. and A. Churchill. 1887.

of abdominal tumours for purposes of diagnosis, which will be found of great service. The classification is based on the most prominent physical signs, arrived at as answers to a *set* form of questions—a method of procedure found to be of the greatest possible use in regard to other diseases. The questions asked are—Is the tumour solid or fluid? Is it in the middle line or on one side? Is it symmetrical or non-symmetrical? On which side does it lie? Does it lie in the upper, lower, or middle areas? etc. etc. We commend the author for saying, “a good deal of rashness and a certain amount of incompetence is sought to be concealed by the practice of ‘exploratory incisions.’ No incision ought to be merely exploratory: at the utmost it ought to be ultimately diagnostic in a case of extreme doubt and difficulty. . . . Perhaps surgeons of large experience are somewhat to blame for speaking of this tentative proceeding as being *frequently* (the italics are ours) justifiable and necessary.”

We are glad to see that Greig Smith does not claim for the abdomen a set of surgical principles *peculiar* to itself. Successful surgery here is only to be attained by careful attention to the same fundamental essentials which will alone secure satisfactory results in operations in other localities. The idea that abdominal surgery demands special attributes in its exponents—certain of which can only be acquired by inheritance, according to some of our friends—is utter rubbish. Cleanliness, gentleness, thoroughness, and reasonableness, are the builders who have chiefly contributed in the erection of this most modern and most wonderful of all surgical monuments. Greig Smith is a general surgeon and operates regularly in the common theatre of the Bristol Infirmary, placing no restrictions whatever on visitors. He operates under the spray and pays the strictest attention to antiseptic cleanliness, and his results “in over fifty cases are equal to those got in any special hospital.” His descriptions of the after treatment are exceedingly important, and his designation of “the trinity of peritonitis, tympanitis, and vomiting” as “the perils of abdominal surgery” is particularly happy.

Nearly half the volume is taken up with the disorders peculiar to women, a field of work in which abdominal surgery really had its origin, and in which it was practically restricted for many years. In much of his faith Greig Smith is an ardent disciple of the Birmingham school. The influence of Tait is impressed in most of the pages of this section of the volume. The author does full justice to our distinguished townsman as well as to Keith, Thornton, Sir Spencer Wells, and other workers in the field of gynæcology. The subdivisions of the sections are excellently conceived and systematically arranged. The anatomy we find to be most accurate; the histories of operations exceedingly interesting; the diagnosis remarkably reliable; and the operations described with the utmost care and precision. No surgeon performing abdominal section need be at a loss to know "how to do it" if he possesses himself of this book and studies it carefully.

The last six chapters deal with subjects not gynæcological. We agree with the author that a surgeon about to open the belly should have a practical acquaintance with the topography of the viscera such as is only to be gained by *post mortem* study of the abdominal viscera by touch. The various operations performed on the stomach are dwelt upon at length, and many valuable practical and original operative hints given. As an example we would quote the following:—In speaking of "Gastrorrhaphy" for perforating ulcer the author says—"If it is found very difficult to suture the perforation on the posterior surface, I would, rather than leave the operation unfinished, recommend incision of the stomach in front, pushing the perforated part through the incision with the forefinger placed behind, and suturing of the ulcerated opening from the mucous surface." None of the many operations which have up to the present been described seem to have escaped the notice of Greig Smith. Rare procedures such as Pylorotomy, Gastro-enterostomy, Jejunostomy, etc., are all here, and each as carefully described as any of the well-known general operations which are being performed every day.

The section on operations of the intestine is well worthy of careful study. We think that fuller reference might have been made to those cases of intestinal obstruction which—occurring in women who have at some previous period suffered from pelvic inflammations, usually puerperal—have resulted in matting of coils of small bowel to the pelvic viscera: uterus and broad ligament, as a rule. We have seen several of such cases, and it is by no means clear what is the best operation to perform for their relief. In the diagnosis of intestinal obstruction the author says “abdominal distension is an early and prominent symptom.” This entirely depends upon the seat of the constriction. When the obstruction is towards the stomach no distension need be present throughout. In strangulation by bands too he says, “there is no tenderness on pressure.” This statement is not quite in harmony with our experience. It is somewhat startling to read that “in every case of laparotomy for intestinal obstruction with distension the evacuation of the intestinal contents is an *essential* (our italics) part of the proceeding.” This is best done—according to Greig Smith—by making a transverse incision with a scalpel into a distended coil at the point most distant from the mesentery, and after emptying the bowels as far as possible, sewing the wound up with a continuous silk suture and dropping back again into the abdominal cavity. The most useful sutures for closing wounded intestine are clearly described and illustrated. We should like to have seen statistics given to show relative recoveries in operations for diffuse purulent peritonitis. In our experience the results are extremely bad.

Section eight, devoted to operations on the kidneys, contains seventy pages, into which is condensed all that is worth knowing in this particular branch of work. We scarcely agree that “the moveable kidney is usually perfectly healthy.” We rather think that moveable kidneys are *usually* pathological kidneys. This kind of kidney often gives rise to acute attacks of illness depending on choking of the renal vein, a fuller description of which would add to the value of this volume.

In writing of Renal Calculus the author says "three types of nephro-lithiasis may be pathologically differentiated," and in this we quite agree with him, and would insist on the importance of the distinction. "The first is the small stone with healthy renal tissue. The second is the large, perhaps branched, stone coated with phosphates, and lying in an abscess sac . . . The third is the small stone blocking the ureteric orifice." "With regard to nephro-lithotomy," he says "supposing that no stone is discovered after complete exploration with the needle, the operation is not to be abandoned. The kidney may be unhesitatingly laid open by an incision along its posterior border, long enough to admit of digital examination of the calyces." This digital exploration is impracticable in normal kidneys by reason of the smallness of the tubes which branch off from the pelvis. "Sounding" as is practised in the bladder is much more conclusive. Amongst "special dangers" after operation, we find no mention made of pyæmia; a complication which we have seen on several occasions, and which probably depends on the proximity of the wounded renal veins to the cava and to their absence of valves.

The concluding sections on the Liver, Gall Bladder, Spleen, Pancreas, &c., are quite on a level with the excellence of those preceding.

The volume of nearly 600 pages is extremely well got up; the type is clean and the printing exceptionally good. We have rarely enjoyed reading a book so much, chiefly because we recognise in its every page the work of the man who speaks with the authority of practical experience, and whose opinions are not mere formulas condensed from the shelves of a medical library. We heartily commend this work of the Bristol surgeon to our readers.

NOTES ON SURGERY FOR NURSES.*

THE notes embrace the main points of lectures which for twelve years Mr. Bell has delivered to the nursing staff of the Edinburgh Royal Infirmary. They are written in a conversational style, making the book extremely pleasant, impressing important facts on the reader which might otherwise pass unnoticed. The volume contains nearly one hundred and forty pages, and is divided into ten chapters devoted to the following subjects:— inflammation, suppuration, ulceration, gangrene, pyæmia and septicæmia, the healing of wounds, burns and scalds, fractures and dislocations, tumours and special operations. The necessity for intelligent understanding and efficient training on the part of those entrusted with the care of the sick is becoming more and more admitted. A nurse ought to know not only *how* to do certain things, but *why* they are done; not only how to recognise inflammation, rigors, fevers, &c., but what they really mean when they occur. The instruction of nurses in our large hospitals, even in the present day, is too often merely a matter of accident. Systematic teaching in the principles of nursing is seldom given, and to meet with a nurse who possesses a book on the subject of her calling is the rarest possible occurrence, and of those who do possess such a work, few amongst them have read it through, and fewer still really understand what it is all about. When nurses are taught that the welfare of their patients depends more upon their own personal intelligence and enlightenment than on the spotlessness of their aprons and their (usually ugly) caps, the sick will be attended to better, the labours of the medical attendant will be lightened and his efforts will be rewarded more expeditiously and often with happier results. Mr. Bell's book supplies a want, and supplies it too in a thoroughly satisfactory manner. It is exceedingly well got up and is published at a moderate price.

* Notes on Surgery for Nurses. By Joseph Bell, F.R.C.S. Edin. Edinburgh: Oliver and Boyd. 1887.

DISEASES OF THE RECTUM.*

THE author states in the preface that the object he has sought to attain in the preparation of this work is to "present a concise and thoroughly practical treatise on the diseases of the rectum." This he has undeniably succeeded in doing, but whether there was any *real need* (by the profession) for a book of the kind is another question altogether. The fourteen chapters into which the volume is divided presents in a readable, and somewhat popular form, all that is best in our knowledge of this subject, and to criticise the work therefore in detail would be merely to praise it almost from cover to cover.

On page 2, the author says "During the periods between the evacuations this portion of the bowel (the rectum) is normally devoid of fæces, which do not pass beyond the lower end of the sigmoid flexure." Why then, we would ask, is it that an exploring finger usually dips into a mass of fæces immediately in passing through the internal sphincter? Is it that the fear of examination induces an urgent desire to defecate! Cooper uses the ligature for piles in preference to all other methods of operation. No reference is made to these rapidly spreading and usually fatal cases of peri-rectal gangrene to which Furneaux Jordan called attention many years ago. Perforation above a stricture is not particularised as a cause of death in the latter condition. We are glad to see that Cooper advocates free excision in early cases of cancer, and that he makes no attempt to suture mucous membrane to skin after the growth is removed. The assertion that "Polypi are of somewhat common occurrence in the rectum" scarcely tallies with our own observation. True polypi are extremely rare in our experience.

The book is pleasantly written, and can be felt as coming from the pen of a surgeon whose opportunities for practical experience have been great. As a small reference book for the busy practitioner it will be found exceedingly useful.

* A practical treatise on the Diseases of the Rectum. By Alfred Cooper, F.R.C.S., Surgeon to St. Mark's Hospital, &c. London: H. K. Lewis, 1887.

RETROSPECT.

PNEUMATIC DIFFERENTIATION.

BY ARTHUR FOXWELL, B.A., M.B. CANTAB.

THIS method of treating diseases of the lung has been extensively practised in America during the last three years. Briefly it consists in placing your patient in a slight vacuum—one-tenth to four-tenths of an inch of mercury—whilst you allow him to breathe air at the ordinary atmospheric pressure. This is attained by means of the *Pneumatic Cabinet*, a machine very much resembling in shape a large cabinet Turkish Bath. It is strongly made of iron throughout except the sloping upper half of the front which is formed by a sheet of plate glass, thus enabling you to see and direct your patient. On the top of the cabinet are bellows, one to three exhaustions of which are sufficient to produce the required vacuum. A mercurial manometer indicates the pressure, and a large tap allows you at any moment to bring it to that of the outside air. In the middle of the plate glass another tap is inserted, the outer end of which can be attached to a spray apparatus for the purpose of inhalation, and from the inner a flexible rubber tube passes to the patient's mouth. The back of the cabinet forms a door through which the patient enters. The dimensions are $2 \times 3 \times 5\frac{1}{2}$ feet, but taps and other excrescences occupy a space of some six inches extra in each direction.

One of these cabinets has been lent to the staff of the Consumption Hospital at Brompton, and at that institution the reporter has lately had the opportunity of seeing and using it in conjunction with Drs. Theodore Williams and T. D. Acland. With a vacuum not exceeding $\frac{1}{2}$ an inch of mercury no special sensation was experienced, and both Dr. Acland and the reporter could easily endure a vacuum of two inches with no further

inconvenience than that caused by the sudden tension of the tympana which was easily rectified by a few attempts at swallowing. With a vacuum of but two to three tenths of an inch there was no difficulty at all in inspiring the gentle rush of the outside air. This appeared to flow in without any effort on your part and to fill the lungs with a warm exhilarating glow. If you made use of conscious effort so as to aid the inflow, a tingling sensation soon pervaded your chest much like that experienced after a short sharp flat race on a frosty morning. With the same vacuum expiration was performed without any labour. The after effect was one of exhilaration, and none of that heavy malaise and headache which the ordinary compressed air bath often gives was experienced. One great feature of the instrument is the quickness with which the vacuum can be produced or annihilated, this enables you in the case of a very feeble patient to do away with the vacuum during each expiration, reproducing it for the inspiration. The state of affairs can of course be reversed and the patient be placed in an atmosphere of increased pressure whilst still inhaling the outside air—a condition the physical opposite of that arrived at by Waldenburg's apparatus for inhaling compressed air.

Dr. Herbert F. Williams, of Brooklyn, is generally recognised as the originator of the method, while the credit of its mechanism belongs to his friend, Mr. Joseph Ketchum of the same city. Among the earliest publications the reporter has at his command are a reprint of an article by Mr. Ketchum, published in the New York Medical Record for January 9th, 1886, entitled "The Physics of Pneumatic Differentiation;" one on "The Antiseptic Treatment of Pulmonary Disease by means of Pneumatic Differentiation," published in the same Journal on January 17th, 1885, by Dr. H. F. Williams; and a third on the "Physiological Action of the Differential Pneumatic Process on the Circulation," by Dr. E. Tiegel of New York, published in the Journal of the American Medical Association on November 28th, 1885. Since then American literature has been fairly flooded with the results of increasing

experience from men in all parts of the states, and a considerable number of reprints has reached the Editors of this Review. The general tone of these is remarkably uniform in its approval, and the number of reported cures is large, both relatively and absolutely. It seems, therefore, to the reporter that Pneumatic Differentiation has established itself on a sufficiently firm basis to command the serious and practical attention of every practitioner of medicine.

To enter into the theories of the actions of this method would be to go beyond the due limits of this Retrospect, for they are not only varying, but conflicting. Its chief beneficial action is perhaps the expansile power it gives; it enables a patient in feeble health to take deep and repeated inspirations without effort; if effort be used the inspiration must necessarily be greater than when the patient is unaided in his breathing. It would thus enable any dormant portions of lung to enter into their full activity and should, therefore, militate against the inroad of chronic phthisis in its early stages. It should prove of especial service in re-expanding a lung after its compression by a pleuritic effusion or during the slow resolution of some pneumonias, and it is in these cases that its greatest services will probably be rendered.

To believers in the value of antiseptic inhalations it must needs have a great attraction, for there can be no question that such medications must penetrate more deeply than when used in the ordinary way. But further, it is claimed for this method that as the expiratory act is necessarily a more forcible one than it normally is it must produce an unusual condensation of the inhaled air, and thus cause it to part with more of its contained moisture than would otherwise take place.

Its action on the heart and pulmonary circulation is very difficult to estimate, for physiology has shown that the co-relation of respiration and circulation is a most complicated and delicately-balanced one. Probably an unusual expansion of an air sac dilates the capillaries in its walls to an unusual extent and thus helps the right heart to pass the blood through the lungs,

whilst the filling of the systemic capillaries consequent upon the partial vacuum with which they are surrounded would aid this depletion of the lungs. This would seem to be the explanation of its beneficial action in bronchitis, in all forms of which it proves most efficacious. This may also be the reason of its power of stopping pulmonary hæmorrhage of which most writers record cases, and should cause it to be of use in all cases of overworked right heart—*e.g.* in mitral and (especially) renal disease.

One great advantage of this over other physical methods of treating lung disease is that patients like and appreciate it, almost always declaring that its use distinctly braces and exhilarates them.

One great drawback is its unwieldiness, and another its great expense—one hundred pounds for each cabinet without extras.

NERVOUS DISEASES.

BY C. W. SUCKLING, M.D. LOND., M.R.C.P.,
PHYSICIAN TO THE QUEEN'S HOSPITAL.

The Curative Power of Prolonged Sleep in Brain Exhaustion.—

Dr. J. L. Corning says that prolonged sleep is the cardinal principle of brain rest, but that it must be combined with over-feeding in order that repair of the exhausted brain may take place. Dr. Corning places the patient in a darkened room for from 10 to 15 hours at a time. The amount of sleep being progressively increased by habit, moderate medication, and hydrotherapy. When the patient awakes nourishment is given in an easily digested form. The hours of wakefulness are devoted to some form of amusement, but all forms of mental exertion must be prohibited.

Prolonged Sleep, or Hypnosis.—MM. Camuset and Planes record the case of a man who remained asleep for three months. The patient was fed by hand, food being swallowed when placed in the mouth. The recovery was gradual. The authors divide

the pathological conditions of sleep into four groups :—(1) In those suffering from some form of insanity, generally melancholia. (2) In hysteria and epilepsy. (3) In cases of organic brain disease, and in general diseases, such as diabetes. (4) In cases in which no cause can be determined.

Paralysis from Chronic Arsenical Poisoning.—Drs. Cushing and Prince (U.S.) (Journal American Medical Association) have reported a case of this nature. The poison was intentionally given in small doses by those in charge of the patient. The patient became paralysed from head to foot. The sense of touch was lost over all four extremities, but hyperalgesia existed in places. The Faradaic excitability was lost in the muscles of the legs, forearms, and hands. The Faradaic excitability of the ulnar and median nerves was lost on both sides, and the reaction of degeneration was present. Recovery took place. The case strongly resembled one of alcholic paralysis.

Massage in Paralysis Agitans.—M. Berber recommends the use of massage in paralysis agitans. In his cases it has removed all stiffness of the muscles, and has caused a diminution, and in some cases a disappearance of the tremor.

Ascending Paralysis after Whooping Cough.—Dr. Möbius, of Leipzig, has recorded the case of a child who suffered from paralysis after an attack of pertussis. As the whooping cough subsided the loss of power came on. The legs were flaccid and powerless; the knee jerk and plantar reflex being abolished. The electrical excitability of the nerves and muscles was almost normal, and sensation was preserved. Within three weeks of the onset of the paralysis the legs were better and the child could stand again, but the arms were then almost completely paralysed. The head fell to one or other side, but the abdominal and dorsal muscles generally were unaffected—except those of the shoulder and neck. Finally, the diaphragm ceased to act, the abdomen being retracted at each inspiration. The bladder and rectum acted normally. In a few weeks improvement set in and the paralysis gradually disappeared, the muscles of the neck first recovering. The paralysis was thus essentially an ascending one

strictly limited to the motor nerves. The diagnosis lay between slight myelitis and so-called multiple neuritis. Dr. Möbius selected the latter, because the bladder and rectum were unaffected.

Mental Overwork treated by Issues.—Dr. A. Langeveld, in the *Weekblad van het Nederlandsch Zidgdschrift voor Geneeskunde*, records the case of a man suffering from mental overwork. He complained of a sense of pressure in the head and along the spine. He could not speak for five minutes, or walk more than a few steps, and could scarcely read or write. Various remedies having proved futile, a large blister was applied near the sacrum and kept open by antimonial ointment, and a week later a second similar blister was applied near the first. The pain in the head and back were much relieved and the mental condition began slowly to improve, but when the sores were allowed to heal the mental condition became worse. After a considerable time the man was cured. The spinal veins have been shown by Breschet to communicate with the veins of the surface, and the issues probably cured by relieving a congested condition of the spinal veins.

Glycosuria in Disseminated Sclerosis.—Miss B. Edwards (reported in the *Practitioner*), working under Charcot at the Salpêtrière, records some observations of glycosuria in a case of disseminated sclerosis. The nervous lesions had first shown themselves in the brain and then had extended to many parts of the spinal cord. The case was diagnosed by Charcot as being one of disseminated sclerosis which had been hemiplegic in its commencement. When first examined there were clear signs of this disease without any glycosuria, polyuria, or albuminuria. Five months later the patient was found to be passing 180 grammes of sugar in 10 pints of non-albuminous urine per diem. Glycosuria occurs in other nervous diseases, *e. g.*, locomotor ataxia (Oppenheim); and on the other hand, cases in which the clinical symptoms of diabetes have been predominant have had concomitant symptoms of nervous character, such as patches of anæsthesia, analgesia, girdle and lightning pains, gastric crises, absence of knee jerk, and perforating ulcer of the foot.

Hyoscine in Insomnia.—Dr. Hamaker, Meadville, Pa., reports a case of insomnia produced by intense mental application. Ordinary hypnotics failed to produce sleep, and previous to the administration of hyoscine the patient had suffered for several weeks from most distressing insomnia and headache. Hydrobromate of hyoscine in a dose of $\frac{1}{12}$ grain at bed time was completely successful, the insomnia and resulting headache being cured. The solution of hyoscine appeared to deteriorate by long standing or by exposure to light.

Hysterical Pymphigus.—M. Gagneur, of Lyons, in the Province Médicale, mentions a case of pemphigus in a hysterical patient. Enormous phlyctenæ appeared on the dorsum of the left foot and along the back of the leg, near the popliteal space. M. Gagneur believes that hysteria was the cause of the cutaneous disorder in the same way that it causes various disturbances of the nervous system by interfering with vaso-motor innervation.

The treatment of Hysterical Headache.—M. Féré advocates the treatment of hysterical headache by mechanical pressure. He uses cushions filled with shot which may be made in any shape. In four cases satisfactory results were obtained by the use of these cushions.

Inequality of Pupils in healthy persons.—From an examination of one hundred and thirty-four healthy recruits, Dr. Ivonoff or Kirilov draws the following conclusions:—(1) Equal or symmetrical pupils are met with but very seldom, in only 9 per cent. of those he examined. (2) In 54.5 per cent. of persons the left pupil is larger than the right one. The halves of the face also are rarely exactly symmetrical.

Acute Melancholia caused by Impacted Fæces.—Hutchinson (American Journal of Insanity) describes the case of a woman suffering from acute melancholia whose skin was bronzed, dry, and hard, and whose hair was dry and falling out. A distinct tumour was felt through the abdominal walls following the course of the rectum and sigmoid flexure. The tumour proved to be an accumulation of fæces, and was removed by repeated enemata. Rapid improvement in both the mental and physical condition followed, and within a month the patient was cured.

THERAPEUTICS.

BY T. STACEY WILSON, B.SC., M.B.

Acetanilide or Antifebrin.—Dr. J. Widowitz, in the Wiener Med. Wochenschr. for June, gives his experience of antifebrin as an antipyretic for children. He used it in 53 cases, and in each instance found it to be of very great service. Its effect was least marked in the early stage of scarlet fever, and to a less degree the same was observed in measles.

As a rule the temperature in the rectum began to fall within ten minutes, or at most within twenty minutes, after its administration. The temperature did not long remain low but rapidly rose again. He found $1\frac{1}{2}$ grains suffice for children under four years of age, and for older children from 3 to $4\frac{1}{2}$ grains; the amount given per diem being 30 grains or less, according to the age of the child and the amount of the fever.

He found that no unpleasant results followed its use in these cases, but in a later communication mentions that, in one case of pneumonia, a rather intense cyanosis of the face and finger tips followed each dose of the drug. This latter observation is more in accordance with Dr. Bero's experience, quoted in the Lancet of July 9th, for he says that he gave antifebrin to 18 patients, in doses varying from $1\frac{1}{2}$ to 45 grains per diem, and found it very uncertain in its action, producing chilliness in most of the cases, cyanosis and irregularity of the pulse in several; whilst in one case, after a dose of $7\frac{1}{2}$ grains, there were alarming symptoms due to failure of the heart.

Antipyrin.—This drug is now generally acknowledged to be a safe and almost certain antipyretic, for it only fails to reduce temperature very occasionally, and is very seldom followed by unpleasant consequences. It often produces a good deal of sweating, sometimes to an unpleasant extent, or the frequently described rose coloured or purplish red rash.

Attention has lately been drawn by Prof. Sée (Compt. Rend., CIV.), to the fact that it is also likely to prove very useful as a substitute for morphia in relieving pain. He finds that 8 grains administered hypodermically gives speedy relief in the pains of rheumatism, gout, lumbago, herpes zoster, ataxia, hepatic and renal colic, and angina pectoris. He considers its action to be not only sedative but also curative. If further experience confirms this observation, we shall be glad to let morphia be superseded as a sedative by this drug, which, so far as we know, does not produce unpleasant after effects, or give rise to any craving for the drug, such as that which renders morphia so undesirable.

A new Local Anæsthetic.—Under this heading Dr. T. H. Claiborne, New York, in the New York Medical Record, describes a new alkaloid, discovered by Dr. Seward, in the leaves of a tree as yet not identified, but which resembles the *acacia stenocarpa*. To this alkaloid the name Stenocarpine is provisionally given, and he claims for it an action on mucous membrane similar to, but more powerful than cocaine, and also powerful midriatic properties, and power of paralysing the muscles of accommodation. He found that complete anæsthesia of the conjunctiva was produced in five minutes by two drops of a two per cent. solution. Full dilatation of the pupil occurred in twenty minutes and lasted for two or three days. Complete paralysis of accommodation was produced in from twenty to twenty-five minutes and lasted till next day, not passing off completely for three or four days. Dr. Jackson (Med. News) and others have verified these observations, and find that in addition if applied to the skin it produces anæsthesia, and that an incision of considerable depth can be made painlessly under constant application of a 2% solution, provided that it is only very gradually deepened. If injected hypodermically it acts well as a local anæsthetic.

Salinaphthol.—This compound is formed by combining salicylic acid and naphthol. In action it resembles salol, but it is considered to be a safer drug on account of the

naphthol being less likely to produce unpleasant symptoms than the phenol, which enters into the composition of that drug. The fact that salinaphthol passes through the stomach unchanged, and is only decomposed in the intestines, has been utilized by Dr. Ewald (B. M. J.) for making a series of observations upon the length of time that the stomach takes to empty itself in health and disease. He finds that in health salicylic acid appears in the urine in from 1 to 1½ hours after taking salinaphthol; while in diseased states of the stomach it is delayed for 2 or 3 hours. This may give us material assistance in the diagnosis of the condition of the stomach, and may afford important indications for treatment.

Thymol.—Dr. Henry of Philadelphia draws attention to the usefulness of this drug in intestinal catarrhs, acute and chronic, and in enteric fever. The action seems to be due to its antiseptic effect, combined with such a degree of insolubility as allows it to reach the intestines before it is absorbed. Dr. Henry finds that two 2½ grain pills every six hours are sufficient to produce a good result, but in Italy as much as two to three drachms per diem have been given.

Papain.—In a series of experiments lately published in the Lancet, Prof. Finkler of Bonn, demonstrates the superiority of this vegetable ferment, which has been more or less known to the profession for five or six years over either of the known animal ferments. He further points out that it is much more suitable than either pepsine or pancreatine for internal administration, both on account of the fact that it will act equally well in the stomach or intestines, and also because it acts better than pepsine when there is not much liquid in proportion to the solids being digested, a condition which obtains in the alimentary canal.

Amylene Hydrate ($C_6H_{12}O$).—This is another of the many new hypnotics which have been lately introduced, and Dr. Mering (Progrès Medical) states that 30 grains are equal in strength to 15 grains of chloral or 45 grains of paraldehyde, and that in medicinal doses (40–60 grains) it exerts no observable influence

on the heart. When toxic doses are given to animals death is caused by failure of the respiration preceded by abolition of the reflexes.

Methylal.—The use of this drug as a hypnotic in cases of insomnia in the later stages of mania or dementia is advocated by MM. Mairet and Combemale. It was not found of use in acute mania or acute alcoholism. It has an agreeable taste and odour, and can be given in doses of from 75–120 grs. Toleration of the drug is produced in five or six days, but on ceasing for two or three days this toleration seems to disappear.

Local News.

GENERAL HOSPITAL.—Mr. George Hyde Melson, M.B. (Lond.), has been elected House Physician in place of Dr. Stacey Wilson, who has resigned. Dr. Melson is the youngest son of our esteemed townsman, Dr. Melson, J.P.

QUEEN'S HOSPITAL.—Mr. Frank Marsh, F.R.C.S. (Eng.), has been elected Surgeon to fill the vacancy caused by Mr. Jordan's resignation some months ago.

Mr. J. T. J. Morrison, B.A., M.B. Cantab., F.R.C.S. (Eng.), has been elected Casualty Surgeon in place of Mr. Marsh elected Surgeon.

Mr. E. C. Garman, M.R.C.S., L.R.C.P. (Lond.), has been elected House Physician in place of Dr. G. H. Melson resigned.

NINTH INTERNATIONAL MEDICAL CONGRESS.—This great Medical gathering was held in Washington, U.S., on September 5, 6, 7, 8, 9, and 10. We are indebted to Messrs. Wood & Co. the well known publishers for advance slips supplied by

The Medical Record, of New York, from its special report. We desire to express our obligation to our contemporary for the courtesy which has enabled us thus early to form some idea of the result of the doings of the Congress which was formally opened by the President of the United States, His Excellency Governor Cleveland. Amongst the officers of the Congress, besides Americans, were representatives from France, Germany, Austria, England, Scotland, Ireland, Canada, the East Indies, Egypt, Belgium, Holland, Italy, Switzerland, Denmark, &c., so that "international" was not misapplied to such an assemblage of men. The Congress was under the presidency of Dr. Nathan Smith Davis of Chicago. The work was divided into eighteen sections, presided over by leading Americans, as follows:—General Medicine, General Surgery, Military and Naval Medicine and Surgery, Obstetrics, Gynæcology, Therapeutics and Materia Medica, Anatomy, Physiology, Pathology, Diseases of Children, Ophthalmology, Otology, Laryngology, Dermatology and Syphilography, Public and International Hygiene, Climatology and Demography, Psychological Medicine and Nervous Diseases, and Dental and Oral Surgery.

An address of welcome was delivered by Hon. Thomas F. Bayard, Secretary of State.

It is quite impossible in the space at our disposal to record the proceedings of such a busy assemblage, even in abstract. A lot of good work certainly appears to have been done, the essence of which will without doubt be noticed in our ordinary retrospects on the various subjects. We are gratified to learn that this ninth international congress—which at one time threatened failure through disruption amongst the "American Medicals"—has been so great a success, and we believe that the results accruing therefrom will be as beneficial to our race as from the former meetings at London and Copenhagen.

The next Congress will meet at Berlin in 1890.

NEW INVENTIONS, DRUGS, ETC.

THE "VIKING" PURE INVALID DELICACIES.—We have been favoured with samples of these foods for the sickroom and have no hesitation in speaking highly of them. We are using the beef tea at the present time in a case with satisfactory results. The essences are delicate in character and keep for some time after being opened.

New Books, etc., Received.

BOOKS.

- Sprains : their Consequences and Treatment. By C. W. MANSELL-MOULLIN, M.A., M.D., F.R.C.S. London : H. K. Lewis. 1887.
- Hoblyn's Dictionary of Medical Terms, edited by J. A. P. PRICE, B.A., M.D. Eleventh Edition. London : Whittaker and Co. 1887.
- On the Animal Alkaloids. By SIR W. AITKEN, Knt., M.D., F.R.S. London : H. K. Lewis. 1887.
- Gout and its relation to Diseases of the Liver and Kidneys. By ROBSON ROOSE, M.D., F.C.S. Fourth Edition. London : H. K. Lewis. 1887.
- Hydrophobia in relation to M. Pasteur's method and the Report of the English Committee—A Lecture. By Dr. A. LUTAUD. London : Whittaker and Co. 1887.
- The Rectum and Anus. By CHARLES B. BALL, M.Ch., F.R.C.S.I. Illustrated. London : Cassell and Company. 1887.
- Études Cliniques sur Le Morrhuel (Extrait de l'Huile de Foie de Morue brune) par E. CHAZEAUD, Docteur en Médecine de la Faculté de Paris. Paris : G. Steinheil. 1887.

JOURNALS.

- The Indian Medical Journal—The Edinburgh Medical Journal—The Practitioner—Annals of Surgery—The Journal of Laryngology and Rhinology—The London Medical Record—The Provincial Medical Journal.—The Journal of the British Dental Association.
- The Archives of Pediatrics—The New York Medical Abstract—The American Practitioner and News—The Medical Age—The Medical Herald—The Western Medical Reporter—The Boston Medical and Surgical Journal—The Medical Record—The Atalanta Medical and Surgical Journal—The Canadian Practitioner—The New York Medical Record.
- L'Année Médicale—Centralblatt für Kinderheilkunde—Journal de Médecine de Paris—Archives Roumaines de Médecine et de Chirurgie—Le Progrès Médical—The Sei-i-kwai Medical Journal—Revue de Médecine.

THE
BIRMINGHAM MEDICAL REVIEW.
NOVEMBER, 1887.

ORIGINAL COMMUNICATIONS.

ON PARACENTESIS THORACIS.*

BY T. H. BARTLEET, ESQ., F.R.C.S.,
SURGEON TO THE GENERAL HOSPITAL, BIRMINGHAM.

It is a very common and a very reasonable thing to do, to read a paper on some case remarkable for its rarity, or on account of its treatment, illustrating either some new pathological views, or some therapeutical innovation or novelty; but I bring before you to-day the paper promised to your indefatigable secretaries, on the ground that the operation, though a very important one in its results, is a very common one.

Moreover, although the operation of paracentesis thoracis is a very frequent one in the practice of all surgeons, there is a singular want of unanimity with regard to somewhat important details. There are many ways of performing the operation, ways differing even in principle as well as in detail. No doubt I shall be met by the statement that the operation of paracentesis thoracis is required in conditions which vary almost as much, pathologically and clinically, as day from night. Agreed, that these different conditions in which paracentesis is performed, allow, and indeed demand, very diverse operative procedures; but what I want to evolve is this, that in the same condition different surgeons would advise and would perform different opera-

* Read before a Meeting of the Birmingham and Midland Counties Branch of the British Medical Association, October, 13, 1887.

tions. That if four surgeons saw separately the same case, one would advise aspiration, one free incision, another partial excision of a rib, and the fourth, a double opening and a drainage tube passed through the chest. Now, although each of these operations might ultimate in the cure of the patient, it is evident one must be the best, and it is to raise a discussion on these points and to gain the opinion of my surgical colleagues, rather than dogmatically to assert my own views, that I appear before you to-day.

I must premise my remarks by saying that this is purely a surgical paper. I hope, however, it will not be without its interests to physicians, as they are intimately associated with us in the operations we are about to discuss.

I do not purpose to go into the pathology, etiology, or treatment of cases requiring paracentesis thoracis. I shall take the case as it is presented to the surgeon when he is called into consultation, and shall only allude to the differences in the patient or in the disease, in so far as these differences affect the surgical treatment.

I shall not even attempt to describe the clinical symptoms or physical signs that intimate that the case is one requiring surgical aid. I generally feel that the physician is my master in all these important details, and I more or less completely accept his view of the past and present condition of the patient. I will only mention two circumstances that have a little surprised me: one is the rarity of the existence of bulging of the intercostal spaces; and the other is that, in children at all events, the presence of respiratory sounds at the point at which you are about to puncture is no bar to your doing so. Such respiratory sounds are no doubt modified, but they are present, and have more than once caused me anxiety in driving a trocar or needle into the chest, until experience proved to me that the existence of respiratory sound was perfectly consistent with the presence of fluid.

In acute pleurisy the operation of paracentesis is not, I fancy, very frequently performed. It would not be becoming in a

mere surgeon to venture to question whether or no it might not be performed more frequently with advantage. I remember hearing, I think from my colleague Sir Walter Foster, that the introduction of aspiration had been followed by a great increase in the mortality from pleurisy with effusion—but after all statistics do not prove much.

When aspiration was new, the very ease with which it could be employed, the very readiness with which fluid, which would take a long time to absorb, could be withdrawn in a few minutes, this very facility of the whole procedure may very possibly have induced its performance in cases where it was quite unnecessary, as where the effusion was limited in amount and the lung was apparently not greatly compressed. In other cases, may not the readiness of the flow have induced the operator to attempt to completely empty the pleura, in the same way as he might attempt to empty the peritoneal cavity in ascites. Both these procedures would be risky if not absolutely dangerous, and it seems to me they may have given the operation of paracentesis thoracis in acute pleurisy a bad repute. I would venture to suggest that in cases of acute pleurisy in which there is great distress of breathing, from pressure on the lung, or in cases in which physical examination shows that the lung is compressed against the spine, cases in which if the pleural fluid be not either absorbed or removed by operative means early, there might be some danger of permanent disability of the lung, I would venture to suggest, I say, in such cases the removal of a moderate amount, from two to four ounces, of the fluid by means of an aspirator. I remember well being taught that such removal of a small amount of fluid frequently set going a process of absorption that caused the rapid disappearance of the remainder.

I shall have to allude to the dangers of aspiration. With clean and aseptic instruments I think the danger of inducing suppuration of the fluid contents of the pleural cavity would be very slight, while the removal of a very small amount of fluid would not cause any great risk of syncope or thrombosis; if

however, the risks of aspiration, real or exaggerated, caused anxiety either to physician or surgeon, the fluid could of course be removed by the ordinary trocar and canula employed for the operation of paracentesis thoracis, or the aspirator itself can be employed as a syphon, discarding the "exhaust" principle and leaving the only force employed—the weight of the column of fluid in the long limb of the syphon. Bearing in mind that the longer this limb is the greater the suction force employed.

It is not very common to see cases of traumatic pleurisy. I had one under my care some years ago at the General Hospital. A man was, in a drunken row, stabbed about an inch below and two inches external to the left nipple. The situation of the wound made us fear that the heart or the pericardium might be wounded; a day or so after his admission there was a free serous discharge from the wound, which discharge was forcibly expelled when the patient coughed. We employed a long probe which passed to the back of the chest; feeling sure that the constant ingress of air would produce suppuration, and that this, if associated with closure of the track, would necessitate perhaps operative measures in the dangerous neighbourhood through which the wound passed in safety. I opened the chest behind and carried a drainage tube from back to front. The case ultimately did well.

But the chief importance of the operation of paracentesis thoracis is in connection with chronic pleurisy and empyema. Until about 35 years ago such cases were left to themselves, and histories of cases are recorded, some with recoveries, others fatal, where the fluid was naturally freed by opening into the lung and discharging through the bronchi, into the peritoneum, and sometimes on to the surface of the body. Although Hippocrates opened the chest, the operation of paracentesis thoracis was rarely performed until Dr. Bowditch, an American physician in 1852, called attention to the advantages of operation by the publication of a long series of successful cases. I had recently under my care a case of empyema which discharged

through sinuses which riddled the female breast ; but the natural cure of cases of empyema by spontaneous evacuation is rare now-a-days, such cases being usually diagnosed and treated before such spontaneous cure can have occurred, and when it does occur the opening is often illplaced and inadequate. Now, given a typical case of empyema, there are many ways in which it can be treated.

1. By Dieulafoy's Aspirator.—The readiness with which evacuation can be secured, the cleanliness of the operation, and the absence of pain, are all causes that commend its adoption. But I think this operation is most unsuitable ; for i., It is inefficient ; ii., It is unsafe. It is inefficient—I say this in the face of recorded cases of cure of empyema—I think usually in children—after a single, or after two or three aspirations ; for the aspirator cannot completely empty the pleural cavity, and when the needle is withdrawn and the opening closed—I am now only speaking of closed aspiration—a certain amount of pus remains in the pleural cavity, what I might call the abscess cavity ; and we know well from experience of abscesses in other parts, that pus, thus left, does not absorb, but ultimately requires to be evacuated ; and this condition of things is not altered by a second or third aspiration, or by any number of operations.

The operation of aspiration in these cases is fraught with danger. First, the danger of syncope, which is common to this with any other operation that empties somewhat suddenly a pleura full of fluid, but which danger is greatly increased by the suction power exerted by the aspirator ; for it is evident that a full chest opened by a free incision, or by a trocar and canula, will only empty itself to the extent of free running away of the fluid contents, while the suction power of an aspirator, or the force exerted even by a syphon, will draw away something beyond this. Nextly there is the danger from the sudden emptying displacing a thrombosis. This is no fancied risk. I myself saw a man die suddenly during the operation of aspiration. This case, which is a leading case, was under my colleague Sir Walter Foster.

2. The opening by trocar and canula is much safer ; it has the disadvantage of admitting air, which is sucked in by the movements of respiration. This would be likely to be very detrimental in removing serous fluid in chronic pleurisy ; it is distinctly disadvantageous too in cases of empyema where we are anxious, if possible, to keep the chest contents aseptic by the use of Listerian precautions. You will probably remark at once that this ingress of air might be prevented by attaching to the canula an india-rubber tube and evacuating the chest contents under water. This is undoubtedly true, but I would remind you that by this procedure you employ the canula and tube as a syphon ; and with the advantages of a syphon you also entail the disadvantage of suction and the risks just mentioned as associated with any forcible evacuation of the fluid.

3. A third way of operating is by a long incision. This is, I think, a satisfactory method of emptying the chest in cases of empyema, but it is rather severe, and although it serves the purpose of emptying the pleural cavity, it adds to the risks of the case a somewhat severe operation associated with more or less bleeding, and it leaves a large wound to be healed. It is however free from the special risks of the closed operation and of paracentesis by trocar and canula ; it nevertheless presents certain risks of its own, and except in children, where the processes of repair and recovery are rapid, it will not, I think, usually commend itself to the surgeon.

4. I next come to the operation by paracentesis and drainage by drainage tube. This I think is the best form of operation. We get a free evacuation without the risk of suction either of the aspirator or of the syphon, and we avoid the shock and hæmorrhage consequent to a long incision, and also the exhaustion attendant upon the healing of an extensive wound ; especially upon the healing of a wound in a patient exhausted by copious and protracted suppuration. Believing, however, as I do, that the insertion of a drainage tube or of drainage tubes through a limited incision is the best operation in cases of empyema, yet

many considerations arise in connection with the operation. To wit, the site of the opening, whether one opening or two, the insertion of one or more drainage tubes, or whether the drainage tube shall traverse the pleural cavity or no. Mr. Marshall recommends an incision in front, which he says is the point at which an empyema usually evacuates itself, when it does so through the chest wall. This does not seem to me good reasoning. Art may well supersede nature and an empyema does not choose this place to evacuate itself because it is the best, but because it is the thinnest, and more easily penetrated.

Dr. Bowditch chose his place of incision thus:—He percussed the lowest level of the lung on the healthy side and incised on the diseased side a little above this line beneath the angle of the scapula.

This is the anatomical site and is chosen so as to get as close as may be to the bottom of the pleural cavity. Dr. Bowditch's incision would strike the bottom of the pleural cavity of the patient when erect or sitting up in bed.

But these patients are generally lying or semi-erect and on the diseased side so as to secure the healthy side untrammelled as regards respiratory movements, and therefore, the lowest point of the cavity is usually tapped by what might be called the classical site for the incision, that is, in the 6th intercostal space, in the third line of the axilla just above the 7th rib. The incision immediately above a rib, avoiding the risk of wounding the intercostal artery, which lies in a little groove under the lower margin of each rib. This point in the wall is found to be exactly midway between the spine and the sternum on a level with the nipple.

Next comes the question of one or two openings. I unquestionably give the preference to *two* openings. The contents of the pleura are often thick and curdy. A drainage tube may easily get blocked, and great harm might be done and great risk incurred before the surgeon detected and rectified the error. This obstruction would be much less likely to occur with two openings. Moreover it is often necessary to inject the

pleural cavity to prevent fœtor or septicæmia, this is very risky if there be only one opening.

A case of great importance came under my notice, though not under my care some few years ago. A gentleman had one drainage tube inserted in his chest for empyema. The cavity was washed out daily by a gentle stream from a syphon. On one occasion the patient suddenly gasped, became convulsed, then unconscious and died in a few hours. His physician, an old fellow student and friend of mine, wrote to me on the matter, and expressed himself as fully persuaded of the absolute necessity in such cases of two openings. He believed that in this case the pleural cavity became distended and a thrombosis displaced.

Now as to the question of drainage tubes.—Prof. Gross, of Philadelphia, considers them “harsh and dangerous,” and Dr. Quain, in his Dictionary of Medicine, considers their use “improper,” and says “they act as a seton.” But surely such opinions avail against drainage generally and not against drainage of the pleural cavity specially; while I think all practical surgeons, whether disciples of Lister or followers of our late colleague Sampson Gamgee, are agreed that drainage is the main-spring of success in a great deal of operative and accidental surgery.

I would however remark here that the operation by two openings permits the *traversing* of the cavity of the pleura by a drainage tube instead of the insertion of one at one opening. This latter procedure, the insertion of one drainage tube, is always associated with risk of the tube slipping; either slipping *out*, to the detriment or discomfort of the patient, or slipping *in*, to his greater detriment, since the drainage tube will then act as a foreign body and prevent the closure of the opening.

A year ago I had a troublesome case of empyema which had evacuated itself. A second opening was made lower down the chest and the cavity traversed by a tube. As the discharge got less the tube was divided, and a short piece put in at each opening. The patient improved for a time, and then came to a

stand-still. I again investigated the pleura by passing that best and most sensitive of all probes, the index finger, through the sinus into the pus cavity. I there detected a drainage tube, which I extracted. I passed the finger again, and found and extracted a second, and as after this the sinus still did not close, I am by no means clear that there was not another drainage tube which I did not feel. I now prevent this *contretemps* by passing through *every individual* drainage tube *I ever* employ, in this or any operation, a safety pin.

The operation of passing a tube through a chest is often rather difficult. The ordinary mode of performing the operation is to pass through the first opening a long probe, feel it bulge against an intercostal space, and cut down on it, and then pass it through the second opening and draw a tube through after it. But very often you cannot feel the pressure against an intercostal space. There may be adhesions in the way or the ribs may be very close together.

The procedure I employ is simple, sure, and speedy. It is to incise the skin down to intercostal muscle in what I call the classical spot on the axilla and thrust in a probe; then incise on the same line close to the erector spinæ; divide down to the intercostal space, thrust a large director specially made for the purpose into the pleura. By a little manœuvring the probe will be passed into the groove in the director and carried by it through the second incision. The incisions are now stretched by passing into them and opening the blades of a pair of forceps, and the drainage tube being attached to the silk in the eye of the probe is readily drawn through and tied together.

Of course the drainage tube is prepared with a whipcord attachment before the operation. The incisions through the intercostal space should not be dilated until the probe is either passed through the second opening, or at all events until it is inserted in the groove of the director so as to limit as much as may be the evacuation of the contents of the cavity, as such incommodes the operator and protracts the operation.

There are two operations of removal of one or more ribs, differing in purpose and in execution. 1. Excision of a part of one rib to make the opening larger and to make it more permanent. The other, the removal of parts of several ribs to enable the chest to contract and the cavity to close. It is possible, especially in children, that the patency of the opening into an empyema, especially where the ribs are very close, might be secured by excising part of a rib. This should be done intraperiostally. The ribs will be restored by the time the opening has closed. This is quite a different operation to the secondary excision of ribs, to enable the chest to contract and the pleural cavity to close up.

Time forbids me to deal with this further than to say that the operation is a severe one, but succeeds in attaining the object aimed at. I have had several cases. In one, I removed the greater part of five ribs with an ultimately satisfactory result. I am not able to do more than allude to localised empyemata. They are the ones, if any, that might be treated, in my opinion, by a single opening and a single drainage tube.

Finally, I would sum up my remarks by saying—

1. That I believe the removal of a little fluid in some cases of acute pleurisy would be both advantageous and safe.
 2. That drainage is usually indicated in traumatic pleurisy.
 3. That in empyema the treatment, even the repeated treatment by closed aspiration, is alike ineffectual and dangerous.
 4. That paracentesis by trocar and canula is unsatisfactory from the admission of air.
 5. That the treatment by addition to the canula of a tube to empty under water, or aspiration by syphon, is not free from the risks that appertain to aspiration, by the inducement of syphon or suction action.
 6. That the operation by long incision, while securing the object in view, is an unnecessarily severe operation.
 7. That the operation by incision and insertion of one drainage tube is neither satisfactory nor safe.
 8. That the operation I have devised and described for
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traversing the chest by a drainage tube is sufficient, effective, simple, speedy and safe.

9. That the excision of ribs can be rarely necessary for relief of fluid in the chest, but that it is frequently required to complete the cure of a case of empyema by enabling the chest wall to contract and the pus cavity to close.

THE PATHOLOGY AND TREATMENT OF ABORTION.

BY J. A. LYCETT, M.D.

OCCUPYING a portion of such leisure time as an active general practice affords, I take up my pen to write upon the Pathology, and more especially the Treatment of Abortion, which I have acquired from an experience extending over fifteen years. By abortion is here implied the casting off the products of conception before the end of the seventh lunar month of gestation, being, with rare exceptions, the period when the foetus becomes viable. The literature upon the subject is somewhat scanty. In many good works on obstetrics it is treated in a perfunctory manner, though it is of frequent occurrence, and the nature and extent of the morbid forces operating to arrest gestation are varied and numerous; the study embracing a wide range of general knowledge, not yet comprehended, or more success would attend the treatment of some cases where the pathology remains obscure.

There is unfortunately a belief among women, which is passively shared to some extent by the profession, that an abortion is a trivial event, requiring generally no skilled attendance; so that commonly, especially among the lower orders, a medical man is only called in when some serious condition—as excessive hæmorrhage—arises; or more frequently he is only consulted subsequently for some local or general condition resulting through such neglect.

A common immediate cause for arresting gestation is intra-uterine hæmorrhage, which is nearly always secondary to some abnormal condition or pathological change, and is more likely to occur at the period corresponding to the menstrual epoch, and where the vascularity is greater, as from the villi of the chorion, especially at the period and site of the formation of the placenta. According to the stage of gestation, the situation, and amount of hæmorrhage, will the nutrition of the embryo or fœtus be endangered; thus hæmorrhage, implicating a portion of the decidua vera, apart from the serotina, or a localized one in the placenta after it is fully formed, is less likely to arrest gestation. There is no doubt that the ovum is often cast off during the period of segmentation without the woman suspecting that she had conceived; the accompanying hæmorrhage being considered to arise from a delayed, or only more profuse catamenia; consequently statistics are open to the fallacy of being based upon only the known abortions of maturer gestation, which have been variously calculated to be one to every five or ten deliveries at full-term; and that ninety per cent. of married women abort at some time, and quite one-third of all mothers abort once before thirty years of age.

As a result of hæmorrhage, according to the stage of gestation, a variety of morbid changes occur where abortion is not immediately induced. These, with other morbid conditions, have been described by Dr. Priestley in the Lumleian Lectures for 1887, delivered at the College of Physicians, of London, and published in the British Medical Journal of March 26th, April 2nd, 9th, and 16th, respectively, forming a valuable contribution to our, as yet, imperfect knowledge, being the collective results of considerable research and much personal experience.

Though hæmorrhage is frequently an immediate cause of abortion, yet it is also an early symptom of the same, through the inevitable laceration of the vessels, which may be induced by other local morbid conditions, acting in conjunction with, or independent of systemic influences, the pathology of which includes all those forces prejudicial to gestation. Some

of these can only have effect in conjunction with others, or upon pre-existing ones, and the variable order in which they are generated causes a classification to be beset with difficulties, as it is by no means easy to differentiate, *a priori*, and *a posteriori*, in the question of pathological sequence.

The classification, however, which appears to me the most appropriate, is firstly, to describe the morbid changes in the uterus, as this organ is not only the matrix for the developing ovule, but has naturally such a proclivity to become affected under the influence of numerous extra-uterine agencies, to which I will respectively allude where there is an important association bearing on pathology or gestation.

A pathological condition of the uterus may exist not only prior to conception, but be induced subsequently from one or more causes on the part of either sex ; and the ovule may suffer directly from the unhealthy character of the germinating secretion of the man, as from abnormal nutrition through the woman. The endometrium is particularly prone to morbid action, more frequently of a chronic nature, and often in conjunction with some change in the parenchyma of the uterus, which will vary according to the length of time the disease has lasted, and the resulting effects of a former gestation, by which the cervix is also commonly involved. Through chronic inflammatory action the uterus becomes more or less indurated from an increase of connective tissue ; such advanced structural change in the mucosa, and substance of the uterus, becomes a cause of sterility rather than abortion, as it would be only during the earlier stage that a sufficiently healthy decidua could be formed to afford the ovum a nidus ; and according to the condition of the mucosa, and the changes which the glandular structure has undergone, will be the character of the decidua.

In milder cases of disease, the cylindrical epithelium lining the glands will not have changed much, and the secretion will be more mucoid than purulent, whereas in the severer cases, which have lasted long, the epithelium will be more or less replaced by round cells and the glands dilated ; so that in the

latter condition, a decidua, if formed at all, is sure to be abnormal and of short duration. Simple catarrh of the cervix alone, such as is found more frequently in nulliparous women, is less likely to be a bar to conception, or a cause for abortion, than the severer condition with much hyperplasia, such as commonly also accompanies a more or less diseased state of the body of the uterus. As a result of a diseased mucosa, when conception does take place, the decidua may be imperfectly or only in part formed, and even becomes separated from the uterus in places; the reflexa too may fail to properly envelope the ovum. Hæmorrhage is very liable to occur, whether into the parenchyma of the decidua, from it into the uterine cavity, or between the decidua and the uterus. Fatty degeneration is common, either as a cause, or a consequence of hæmorrhage. Sometimes the decidua becomes much thickened and firm, and such thickening may be irregular, forming projections. Partly through a morbid, decidua aided also when the uterine cavity is enlarged, the ovum in passing off is liable to become arrested in the cervical zone, where a nidus is formed to cause a subsequent "placenta previa," being a reason why such a development is more common in multiparæ. Thus of the "shoals" upon which an impregnated woman may be stranded by hæmorrhage, this, I consider, ranks next to ectopic gestation. Associated with a diseased mucosa other abnormal conditions may, and commonly do exist, having a variable relation in etiology: among the uterine being passive or active hyperæmia, cervical laceration, with ectropion and erosion; less frequently polypi, or other morbid growths. The extra-uterine may be either local or systemic, or both combined.

Through hyperæmia the uterus becomes enlarged and soft, and consequently easily bent from the normal; the increased weight of the organ tends to stretch and weaken the supports, causing more or less a descensus, thereby aiding to maintain the hyperæmia by interfering with the free circulation through the pressure, altered position, and stretching of the vessels, and should conception take place, hæmorrhage would be easily induced from a slight exciting cause that otherwise would be

inoperative. Altered positions of the uterus are as much due to structural changes in the organ as from causes exterior to it, acting mechanically, and such hyperæmia is commonly engendered through some systemic influence apart from any direct local or other visceral cause ; a combination of pathological states greatly favouring the likelihood of an abortion from some immediate exciting cause.

To illustrate my remarks, a sub-involution, or a fibroid growth (more strictly myoma) may much alter the shape and position of the organ ; adjacent exterior growths, as an ovarian tumor, or disease of an appendage, or the results of former inflammation, may similarly affect the normal position of the uterus and interfere with physiological development. Visceral diseases, whether cardiac, pulmonary, or hepatic, may so interfere with normal circulation as to cause changes of a secondary character in the uterus and products of conception. So also systemic affections, whether inflammatory, or due to some acute or chronic specific disease, may so influence the circulation, or alter the character of the blood, as to arrest gestation in several ways, either by directly killing the embryo or foetus ; or causing its death through some primary change in the media of nutrition. There are other agencies well understood to those having a knowledge of the physiology and pathology of the organism, which will be alluded to when writing upon the subject of treatment.

One result of hæmorrhage, when abortion does not take place for some time, is the production of what is known as a "mole ;" being a substance composed of altered blood, covered by more or less abnormally-developed membranes, which sometimes, when long-retained, assumes a fleshy character from the great thickening, hence the term "carneous." It does not attain any size, and is usually pyriform in shape ; all trace of the embryo may be destroyed by the compression, and even the situation it once occupied may become obliterated, which is more likely to be the case when the hæmorrhage is subsequent to its death. **Expulsion** generally takes place before such pathological changes occur. I have only met with two cases in about two hundred

abortions, and believe it is only a possible result in early gestation, and before the period when another disease may develop, viz., vesicular change in the chorionic villi. I have had a case in my own practice which developed to several pounds in weight before I was consulted. As evidence in connection with such a morbid growth and syphilis, the husband, a publican, had contracted that disease many years previously, and was then the subject of an abdominal aneurism. Under treatment she was subsequently delivered at term of a healthy child. This disease is of a singular nature, and no doubt precedes the death of the embryo. Generally it grows rapidly by a process of budding from the chorionic villi, forming cysts of variable size, the medium ones much resembling white currants, consisting of a transparent membrane enclosing a clear fluid, and connected by delicate tissue-shreds. This growth has been known to permeate the uterus, and cause death, either by rupture of the organ or by peritonitis.

Continuing briefly the pathology in the order of physiological development, I proceed to the placenta, which when fully formed has in rare instances been vesicular. In one case a child was born alive at the seventh month of gestation, the placenta being much enlarged from so-called hydatid disease.* Hæmorrhage is still liable to occur, especially during its formation, causing what is known as "apoplexy of the ovum." The placenta may present a great variety of morbid changes, partly because moderate hæmorrhage, especially into its substance, does not always arrest gestation; partly too from the influence which the growing foetus obtains; and lastly, because morbid changes are now more easily demonstrated. As a result of hæmorrhage into its substance—especially the foetal portion—cysts are formed from the clot contracting, and yellowish firm masses are often seen. When hæmorrhage occurs over the maternal surface of the placenta it becomes more serious to the life of the foetus, especially if diffused, as owing to detachment from the uterus the foetus may die from imperfect nutrition. The hæmorrhage,

* Vide Edin. Med. Jour., August, 1887, page 102.

however, may involve only a cotyledon. Fatty degeneration is frequently found, which may not only arise as a consequence of hæmorrhage, but may be a primary condition due to blood impurity, and cause hæmorrhage through rupture of diseased vessels; much the same appearances may be found in the vessels of the placenta as are seen elsewhere through systemic influences. The coats of the arteries sometimes become thickened and rigid, and the lumen so narrowed as to cause thrombosis. The membranous septa of the villi may become so thickened as to compress them, thus interfering with normal circulation. In instances where, to my knowledge, one or both parents have contracted syphilis, I have seen various changes in the placenta; usually it is much enlarged from cellular hypertrophy, so that instead of having a relative weight to the fœtus of one to six, it will sometimes have a proportion of one to four; and I have several times found numerous small calcareous deposits, also many indurated yellow masses in the fœtal portion. The whole placenta may be tough, and firmer than natural, or so soft and friable from fatty change as to require great care in the removal.

Under certain conditions, by which the system is imperfectly nourished, the placenta may be smaller and paler, so also from some diseases in the fœtus, or of the maternal system, by which the circulation is obstructed, the placenta may become œdematous and pale. It has been questioned whether the placenta can become inflamed, since it does not possess nerves, but certain changes occur which cannot be otherwise explained but as a result of chronic inflammation, which is further confirmed by the firm adhesions which it sometimes is capable of effecting with the uterus.

Other rarer forms of disease have been described which I have not yet seen: as myxoma, being a fibroid hypertrophy of the villi, forming hard pedunculated growths; also true tubercle, and a form of phthisis, in which consolidation, softening, and disintegration occur. Both lymph and pus have been found on the maternal surface, and even an abscess in the substance.

Primary pathological changes in the embryo or foetus are not so often a cause for abortion as disease occurring in the structure through which nourishment is derived, as the chorion and placenta. The foetus may die as a result of malformation such as an imperforate urethra, causing a rupture of the bladder, and peritonitis, or from some accident, as twisting of the cord, which is generally more marked at the umbilical end, and less frequently a knot may be formed. There may be a great diminution of Wharton's jelly, and even an absence has been recorded, so that the umbilical vessels are thereby liable to be constricted. The foetus may be attacked, and die, from any one of the diseases to which it is liable after birth, and it may further suffer from any deleterious influence in the quality of the maternal blood, as may arise from certain gases, mineral and vegetable poisons, fever, and the acute specific poisons. High temperature, irrespective of a poison, will cause the foetus to die, and its life is endangered when the maternal temperature reaches 104°F. in the axilla. Uterine contraction is a source of danger to the foetus, not only by the constriction of vessels interfering with nutrition, but hæmorrhage may occur through their rupture; such may be induced by reflex action from various causes, as shock, physical and psychical, excessive vomiting, suckling, convulsions, and conditions favouring accumulation of carbonic acid gas in the blood, as in the moribund; but the poison of syphilis is the most frequent cause for abortion, not so much from the visceral changes in the foetus as those occurring in the structures through which it derives its nourishment. The spleen and shaft-bones of the foetus are more likely to show positive evidence of the presence of syphilis, such as the change which is sometimes observed in the latter, between the epiphyses and diaphyses, causing in the earlier stage a red line, followed by much thickening, described by the late Dr. M. Parrot, of Paris.

The amnion being a membrane of little vascularity is subject to few diseases calculated to produce abortion. Bands of tissue have sometimes been found stretching across the sac, and it has

become adherent to the umbilical cord, thus marking inflammatory action. It is occasionally so thin as easily to rupture, and may too be abnormally thick and tough, but the condition known as hydramnios is the most important, being generally due to an obstructed, or otherwise abnormal circulation on the part of the foetus, which, with the placenta, are sometimes found oedematous, as further results of this disease.

I remember a case of hydramnios in a multipara on rupturing the membrane, though the foetus was above the pelvic brim, yet it was instantly expelled, still-born, with many pints of amniotic fluid. The father in this case, some years previously, contracted syphilis.

The Treatment of Abortion.—An inspection of the products of conception rarely alone affords assistance to rational treatment, which like the specific lesion of typhoid will be accompanied by an ever varying morbid state of the system, and may also give rise to various secondary, local, or systemic affections, whether as complications or sequelæ, therefore the etiology, with the accompanying and subsequent morbid phenomena should form the basis for a classification under the respective divisions:—

- (a) Prophylactic, prior to, and subsequent to conception.
- (b) Threatened abortion.
- (c) Complete abortion.
- (d) Incomplete and missed abortion.
- (e) After management.

Following this systematic arrangement, I will, firstly, take the most important, or the means by which, prior to conception, abortion is to be prevented.

To do justice to such a subject, affecting the health of individuals and the welfare of nations, it will require not only a knowledge of the natural and moral laws for maintaining healthy vitality, but of those pathological agencies whether systemic or external to the body, which have a more or less deleterious influence on the organism, forming an extended field for study, which is beset with such difficulties that I fear practically little good will ever be obtained, since many of these agencies, though

well known to medical men, are really beyond legislative remedy. He, however, will be the most successful in the management of remediable cases, who is also an accomplished physician and surgeon, as a knowledge of the healing art in all its branches is essential when the whole organism and the numerous agencies influencing the system have to be consulted.

Aboriginal women rarely abort, or meet with an accident in child-bearing, though labouring under the disadvantage of a want of skilled attendance. In civilized communities the mortality would be great, but for the advantage which knowledge affords.

Owing to the circumstances under which many girls are reared,—whether from following foolish customs which arise from a sense of propriety, fashion, etc., or as a result of stern necessity—they very frequently do not receive the attention and hygienic advantages so essential to healthy development, especially at the period of the physiological change, so that when, from some cause, there exists hereditary defective vitality, the neglect of hygienic measures aggravates the physical impairment and too frequently lays the foundation for future ill-health and disease, which may not become markedly apparent until in after life the reproductive effort fails by abortion. Thus a large section of mature persons becomes physically ill-adapted to produce healthy offspring, and are also more liable as a consequence to the accidents of child-bearing.

The practice of gynæcology has, during recent years, demonstrated how the poison of gonorrhœa will affect the function of child-bearing by causing sterility, abortion, disease, and even death; and from the cases which are constantly being recorded of evil results arising long after apparent cure, it becomes an important question whether there does exist a persistent morbid condition, though not apparently manifesting its presence in the male, may nevertheless be the *fons et origo mali* for much of existing affections of the mucous membrane of the uterus? I believe, too, that syphilis is accountable for more than is supposed, and that there is an indirect mortality from this disease which further investigation will make known.

We are aware of the subtle character of the poison by the manner in which it is capable of manifesting itself in the formative tissues, long after all apparent signs of its presence in the systems have passed away; but without such evidence I suspect that there is ever after induced an altered character of the secretions, which in our present knowledge I can only say may show its influence in an undefined manner. General practitioners are better able to judge of the consequences of this bane upon mankind. Their observations as family attendants, frequently extend for many years, even to more than one generation; thus enabling them to trace the possible connection syphilis indirectly may have in causing a natural weakness of vitality in succeeding generations; conditions of the system named under the vague terms of debility, or constitutional weakness.

Though I rarely see primary syphilis in my practice, yet I very frequently have to treat remote evidences of the disease. I consider that it is capable in time—through impairing vitality—of favouring the production in succeeding generations of certain other affections, as scrofula, some skin diseases hitherto unassociated, and even cancer and phthisis.

It is evident from the history of races (into which I cannot here enter) that in ratio to their exemption from syphilis, is there a corresponding freedom from constitutional diseases, and a greater immunity from the accidents of child-bearing. Biblical and more modern history support this fact.

Other causes, by impairing vitality operate through the system to favour abortion, besides the well known influence of syphilis, as the union of persons at the extremes of the reproductive period, owing either to imperfect development, or to impaired vitality through age. The latter condition being more especially not favourable for a vigorous development of the ovule, influenced however by the health and nature of the constitution; thus an aged male with a damaged constitution from leading a debauched life, may by impregnating a robust and healthy woman, beget a stronger child than his condition would justify. Had, however, the woman been less healthy, abortion probably would be the result, as the nutrition consequently would not be so good.

That abortion arises through faults in the male, is, I suspect, oftener the case than is supposed. Inherited diseases tend to impair the vitalizing power of the sperm, or this power may become impaired through causes subsequently induced, as from certain mineral poisons, such as copper, mercury, and lead. The last being much used in the various manufacturing industries, that of electric-lighting adding another to the long list of deleterious occupations. I have known abortion to occur in two women whose husbands were engaged in this occupation, there being no other apparent cause than the fact of their systems being impregnated with lead. Prolonged fatigue and mental depression also act in a similar injurious manner, and especially masturbation and excessive venery. Farmers are aware that in the breeding of stock if too frequent calls are made upon the male, the females frequently abort, through the ovule dying from defective vitality; and if gestating to term, the offspring is apt to be not so strong and fine. A noted bull or stallion, owing to the frequent calls generally made, is apt to disappoint by the female aborting.

Medical men are not unfrequently consulted in cases when an abortion has taken place once, or oftener, in those desirous of offspring, so that in determining the probable causes the whole field of pathology has to be reviewed, and, according to the family and past history of each sex, the present objective and subjective evidence obtained, will the indicated mode of treatment be governed; guarding, however, against the possible fallacy of accepting some single objective evidence of an abnormal condition as the sole *fons et origo mali*. Thus in a multipara, a previous abortion may be attributed to a descensus of the uterus, through an absence of perineal support, or a want of contractility in the cervix, from a laceration at a previous labour, when the true cause (though probably aided by foregoing conditions) may be due to chronic endometritis from imperfect involution, with, or without hyperplasia, which morbid state may have arisen from various causes, as not suckling, constitutional, or systemic defects, which may be hereditary or acquired.

In the study of gynæcology and obstetrics, it is important not to take too narrow a view of the pathology, and thereby become bigoted, hence one reason for the frequent divergent opinions expressed by persons equally qualified and honest in their convictions.

Treatment subsequent to conception is required where there is known to have been pre-existing deleterious influences to impair the health, or where as a result of pregnancy, or from any cause, there exist other abnormal conditions, endangering gestation. Much which I have written on prophylactic measures prior to conception, applies equally here, and so broad is the study, owing to the manifold abnormal conditions with the varying potency, which may arise, or be in existence to arrest gestation, directly or indirectly, that in order not to make this essay too extended, I will do little more than mention these respective morbid agencies,

Firstly.—Diathetic diseases, as struma, syphilis, tubercle, &c. Assuming that the general health has become more or less permanently impaired from a constitutional dyscrasia, whether congenital or subsequently induced, treatment should not only be directed to relieve existing symptoms, but an endeavour must be made if possible to check further deterioration, keeping in view the pathological course of such respective manifestations of disease. Though therapeutics will be of service, more benefit is likely to be derived from an observance of the various external agencies influencing health, dietetic, hygienic, and those who can afford it, climatic; to which last more attention has been paid during recent years in the treatment of some constitutional diseases.

Secondly.—Poisons in the blood.—Under this class are included as autogenetic those diseases which, by deteriorating the quality of the blood, affect the nutrition of the embryo or foetus, as “renal diseases,” acute and chronic, especially the granular contracted; but all are grave in a variable degree, and frequently lead to disastrous results from a neglect, or ignorance, on the part of the sufferer, of the important significance of

certain symptoms. In bad cases, where death does not occur, abortion generally comes to the rescue; and here the pathological event may be regarded as conservative to life, as improvement under treatment often takes place for a time, and but for the title of this essay, "The Treatment of Abortion," I should have advised avoiding the possibility of becoming pregnant with so serious a disease.

Among other prejudicial qualities of the blood, the diminution of the supply of oxygen is not uncommon, through imperfect aeration, whether induced through disease of the lungs, heart, pleura, or brain. Abortion which frequently occurs in those who are moribund arises from this cause, which may also be brought on by the non-supply of air, or inhalation of it when impure.

The heterogenetic causes comprise malaria, the acute specific diseases, and erysipelas, which last may be autogenetic; the various mineral poisons previously mentioned, and certain vegetable ones, as ergot and savin. Those poisons of questionable action being borax, cinnamon, quinine, and digitalis. The indicated treatment for the various morbid conditions which may thus be induced should, when possible, be preventive, especially in regard to those poisons of an animal character, as when abortion occurs from this cause, which is generally the case, the fatality becomes very high indeed.

Thirdly.—Various habits of body.—Owing to a habit of body, abortion may be readily induced from a slight exciting cause, which, under a healthy condition of the system would be inoperative, as when an abnormal condition of the blood is manifested by anæmia, which may be induced from a variety of causes. Success in treatment will depend upon the etiology, which is sometimes obscure. The opposite condition, that of plethora with healthy vessels, and without any organic visceral disease, is remediable under appropriate treatment, in which dietary and hygienic measures have an important share.

Fourthly.—Diseases and other conditions affecting normal circulation. When from the nature of the disease, or abnormal

conditions, obstruction occurs to the circulation of the blood, so as to produce a more or less chronic state of congestion of the uterus, abortion may be more easily induced from any exciting cause, though most of these abnormal conditions, under proper management, will allow of gestation continuing to, or near term.

The circulation may be interfered with through valvular and other diseases of the heart, intra-thoracic growths, certain changes in the lungs, as emphysema, congestion and consolidation. The portal circulation may be obstructed by the vessels being compressed from some cause, as cirrhosis; true and false; morbid growths of the liver and neighbourhood. Pelvic diseases, and other abnormal local conditions, occurring oftener in multiparæ, are commonly observed for the first time when abortion is threatened, the treatment being influenced by the nature of the respective morbid state which may be such as to render abortion inevitable, whether spontaneous, or justifiably induced. Adhesions of the uterus to adjacent structures, or other results of former inflammation may render a continuance of gestation impossible. Abortion also may be induced from certain abnormalities, as fissure of the cervix, destruction of the perineum, with possibly some attending consequences to the pelvic visceral organs. I have, however, often known women who were the subjects of either cervical laceration, or a destroyed perineum, go to the full period of gestation several times without aborting, therefore, neither of these abnormalities alone can be considered the only cause when abortion occurs, but there must be some co-existing conditions, which either arise as a consequence, precede, or accompany them. When the pelvis is deep without relaxation of the uterine attachments, an absence of the perineum frequently causes no discomfiture; so also when the uterus is otherwise healthy, a cervical laceration, especially in the antero-posterior diameter must be very extensive to alone interfere with gestation, though sometimes in certain subjects, whom, from constitutional defect, would thus be more liable to hyperæmia of the uterus and endometric catarrh, a laceration would probably be productive of harm; but to prove how frequently a destroyed

perineum occasions no inconvenience, my proposal to restore the part to a normal condition, has very often been met with the reply that she prefers to remain as she is for reasons better known to herself; one probably being, that the future confinements may be easier. An abdominal belt will in many cases be of service.

Flexions and versions may be causes for abortion, the former I believe common, the latter very rare. When flexion occurs, the uterus is not in a healthy state. Even in those cases of gestation where retroversion has occurred suddenly, as a result of some physical cause, there has generally been a more or less previous displacement, which the growing conception has raised to a normal position in the pelvis. I have had in my practice four cases where the uterus was retroverted about the fourth month of gestation, so as to become impacted in the pelvis. Retention of urine was the reason in two instances for seeking advice, but sometimes only local pain is complained of, rendering subjective evidence in this, as in all pelvic affections untrustworthy; and nothing should ever be accepted but the objective evidence obtained after careful examination. One of these cases I saw in consultation, the woman having been treated two days for peritonitis by an unqualified attendant who allowed himself to be deceived by the person in attendance stating that she passed water freely. Abortion was not induced in this case.

Fifthly.—Diseases, and other abnormal conditions of the nervous system, may also affect the circulation through the uterus, or by reflex action cause such contraction as to produce a stasis of the flow of blood sufficient to kill the embryo or foetus. Shock, physical or psychical, whether from grief, joy, fright, or anxiety, and other impressions on the mind in a nervous, excitable woman—as seeing a tragedy—may lead to abortion. Syncope, when prolonged, having a similar effect on the circulation as to become thus a source of danger. Convulsions would have the double effect of inducing uterine congestion, and altering the character of the blood through non-aëration. Suckling, and excessive vomiting, may too cause abortion by reflex action, independent of a resulting anæmia.

Organic structural changes of the nervous system, whether cerebral or peripheral (the causes for which being commonly long in operation) may so affect, either directly or indirectly, the functions of life, as to react injuriously on gestation in various ways to a degree sufficient to cause abortion; and the excitement consequent upon the change of life in the newly-married woman—especially during the sexual orgasm—may result in hæmorrhage from the uterine congestion thereby induced. The generative system forming—if I may so express it—a centre which is affected powerfully through the nervous system in a variable manner and degree.

Sixthly.—“Systemic fevers and local inflammations.” When the temperature of the body, as taken in the axilla, reaches 104° F. the life of fœtus is in danger, so that according to the nature of the affection, subject to the condition of the woman, must measures be taken to reduce it. The effect of a local inflammation on gestation varies according to the structure involved, a peritonitis, which is nearly always secondary to some abnormal condition, may require investigation by abdominal section, especially if gestation has not far advanced. Pneumonia, fortunately, is rare during gestation, being so apt to induce abortion, either as a consequence of the high fever, or by inducing uterine congestion, and non-aëration of the blood, and when it occurs, it is nearly always followed by the death of the woman.

Seventhly —Injury of some kind is frequently responsible for abortion, but the susceptibility to abort varies much, being influenced by the constitution and general health, as also by the condition of the uterus and adjacent structures. Nature under a healthy condition of the system is very conservative to the developing conception, shown by the instances which have been recorded of women taking ecbolics and active purgatives, as to cause serious illness; also either inflicting or subjecting themselves to great violence, without meeting with the success hoped for. On the other hand, the slightest traumatic influence may suffice to induce abortion in subjects where some unhealthy condition exists—tight lacing favouring the action of many

traumatic influences. Abortion may be induced from coition, especially at the period corresponding to the menstrual epoch. In the newly-married, this is a common cause, as sexual commerce is apt to be immoderate. Morbid adhesion of the placenta occurs in a large proportion in primiparæ, which may probably be due to local inflammation from such traumatic influence.

There is another traumatism which may be justifiable or criminal; the latter I believe to be more common than is supposed. It is only now and then, when an unfortunate victim dies, that occasionally the facts ooze out; but these deaths afford no reliable information of the frequency of the crime, and the often serious resulting consequences to health, which may be more or less of a permanent nature. I make this statement from the cases which have come to my knowledge of healthy women, and even girls in their teens, whom I have found to be illegally enceinte, being subsequently delivered of the *corpus delictæ*, by some means, without waiting for the physiological action at maturity; and it is not uncommon for respectable married women to solicit me to relieve them of what they consider a trouble and misfortune, though having good homes, with ample means at their command.

To determine pregnancy may be a very simple or a very difficult matter, and mistakes have occurred in the most experienced hands. Vaginal auscultation will in some cases assist the diagnosis, as it is possible to hear the placental souffle, and later on, the foetal heart sound, when neither can be detected through the abdominal parietes. Many years ago I had a coleoscope made on my design, by which I have been able to satisfy myself of the existence of pregnancy when other physical means afforded no reliable evidence. Before use the bladder should be emptied, and firm compression exercised on the hypogastric region by a spring-tourniquet.

Various local diseases, both uterine and extra-uterine, are common causes for abortion, and it is sometimes the case that such affections are discovered for the first time by the medical

attendant through the patient experiencing an increased discomfort consequent upon the pregnancy, or from symptoms developing, threatening abortion. To enumerate the various possible morbid conditions which may exist would entail a review of a considerable portion of the field of gynecology.

(To be continued)

REVIEWS.

SYPHILIS.*

THE publishers of this volume ought to consider themselves fortunate in being privileged to include such a book among the series of clinical manuals which they are issuing for students and practitioners of medicine. It is books like this which the profession—at least the thinking part of it—are really in want of, volumes in which are embodied the opinions of men of experience and of the highest intelligence; of men who have discharged their daily duties with their eyes wide open and whose beliefs are the outcome of their own honest observations. There is no “packing” about this volume on syphilis. It is full of information from cover to cover. Originality is stamped upon its every page; not that the experience and the judgments of others are disregarded; far from this indeed, for the author does the fullest justice to his co-workers. The opening sentences in the preface “the literature of syphilis is encumbered with ill-founded opinions and untrustworthy facts” awakens our interest and prepares us for the palatable report which is to follow.

The whole work is cleverly divided into two parts. The first is made up of “general statements,” and includes chiefly the knowledge which is essential to the student, and the second part

* Syphilis. By Jonathan Hutchinson, F.R.S., LL.D. (with 8 Chromolithographs.) London: Cassell and Co. 1887.

consists of clinical commentaries and illustrative cases, and really may be called the "practitioner's" portion of the treatise.

Throughout, the author aims less at systematic completeness than at clinical exposition. We feel sure that the careful reader will obtain from its pages clear impressions of the present state of our knowledge in most of the topics which it concerns, and will also see suggestions as to the kind of research which is yet needed in many directions. "The creed which will be found to interfuse this work is that the disease depends upon a living and specific microbe, and that it is contagious or transmittable only so long as that microbe retains its vitality."

To review this volume as we should like to would be to reprint most of its contents in our pages; but as this is impossible, we shall have to content ourselves with what we feel at the outset will be a very imperfect notice of Mr. Hutchinson's book. How important is the first injunction. In the first chapter we read—"The first step, in order that we should understand syphilis, is to recognise that it is by no means necessarily a venereal disease." The period of incubation he fixes at from three to five weeks, and expresses his conviction that the early stages are very uniform in their duration. He says that "in a patient who has never had syphilis before, *whatever are the characters of any primary sore which he may exhibit* (the italics are ours) the chances are two to one that the sequel will prove that it contained the germs of true syphilis. Our own experience makes us chary of diagnosing non-infecting chancre, whatever the appearances of a sore may be. The presence or absence of "bullet bubo" is the most reliable piece of evidence on which to form a diagnosis in our opinion. When speaking of Phagedæna, he says that "probably nineteen out of twenty of all forms of phagedæna which we encounter in practice are due either directly or indirectly to its influence." The disease known as hospital gangrene is, he thinks, "almost always set going by the admission of a case of syphilitic phagedæna into the wards."

The appearance of secondary symptoms is to be looked for

from seven to nine weeks after exposure, and constitutes the beginning of "the first stage of constitutional symptoms." "If this period has been well employed," says Hutchinson, "if, in other words, mercury has been freely and adequately given, I believe it is quite the exception for any secondary symptoms to occur at all." How many of us have been taught that unless "secondaries" shew themselves—treatment notwithstanding—our patient has not been suffering from hard chancre at all. If what the author says is true, and he undoubtedly makes out a very strong case in support of his assertion, how much more often will syphilis be diagnosed than at present, both in its earlier and later periods?

Between the secondary and tertiary he recognises an "intermediate" stage in which palmar psoriasis, sarcocele and gumma of the testis, choroiditis, disease of the arteries, diffuse infiltration of the viscera, and certain disorders of the nervous system are prone to occur.

Tertiary syphilis he regards as a disease of the tissues, but not of the blood. The division of syphilis into stages is purely arbitrary, and there is no hard and fast line of distinction between them. The author says that "if it were practicable to use inoculation as a test of stage, we might perhaps be able to distinguish them more definitely. In the primary stage the local lesion is alone capable of conveying the contagion to another person; in the secondary stage the blood and all tissue elements contain the virus; whilst in the tertiary stage contagion is not possible." True tertiary symptoms are those to which a patient may become liable five, ten, or twenty years after his disease, and are mostly of the nature of gummata.

The chapter on treatment is a storehouse of knowledge, richly garnered. We are comforted by the dogmatic tone in which the administration of the specifics, mercury and the iodides, is insisted upon. Speaking generally, Hutchinson advocates the method which is practised in this country of mercury for primaries and secondaries, and the iodides for tertiaries. We say we are "comforted" because it was our duty

a few weeks ago to read a great work on syphilis from the pens of the leading syphilologists (past and present) of the Vienna school, the Zeissls, father and son, who assert just as emphatically that mercury is not only unnecessary during the period of the primary sore, but that its administration is positively harmful, and that this drug should be used only when an expectant method carried out for eight weeks and followed by a subsequent eight weeks' course of the iodides have failed to bring about a cure! Hutchinson still adheres to what is known as "the small dose method" of administration of mercury. He generally prescribes one-grain doses each of Grey and Dover's powders, and regulates the amount of mercury administered in a given time by the frequency with which the dose is repeated. We agree with his remark—when speaking of the treatment as practised at Aix-la-Chapelle—that "everything that is done there can be done equally well at the patient's home." The pages devoted to "treatment of special conditions" are eminently practical, and are quite worth learning by heart.

The second part of the work is, as we have already said, of far greater interest to the medical practitioner, as it is made up entirely of clinical commentaries and illustrative cases. It may be looked upon as a work on syphilis seen from the standpoint of the clinical observer and practitioner, and in it the genius of its author sparkles on almost every page. The plan adopted by Hutchinson in this second part of his work is to take some particular point: for example, "Is an abrasion of the surface necessary to contagion?" "on lupoid affections of the skin in syphilis;" "on the use of specifics for purposes of diagnosis," and then to comment at length upon it. These commentaries are no less than two hundred and forty-three in number, and include most of the matters of interest connected with this common disorder. To be able to read concise accounts of those conditions with which Hutchinson's name is peculiarly associated—such as Hutchinson's teeth, ophthalmoplegia, syphilitic phagedæna, interstitial keratitis, &c. &c., written by Hutchinson himself, will be regarded as a rare treat by every one interested in

the subject of syphilis. The final chapters are devoted to "satellite sores," "syphilitic irritation," "its relation to marriage," "methods of reporting," "diagnosis from cancer," and diseases of special organs. The work is illustrated by eight chromolithographs, carefully executed and adding to the value of the volume.

The reviewer feels that in speaking in the above commendatory tone of the work of one who holds so high a position as an authority on the subject of syphilis, that his conduct may perhaps be considered fulsome or impertinent. He offers his criticisms with becoming modesty as the humble opinions of one who has been interested in the subject of syphilis for fifteen years, and who has an exceptionally wide field for observation.

A TEXT-BOOK OF MEDICINE.*

THE time-worn saw, "Of the making of books there is no end," is preëminently true in the domain of medicine. In fact our ever increasing literature is a simple necessity for a branch of knowledge whose stores are perpetually being modified, yet withal enriched, by the adoption of new theories and facts (more or less proven), and the changing lights and shadows thrown upon old ones. We believe it is a dictum of Prof. Michael Foster that three years is the average interval before the production of a new edition or a new treatise in physiology ; and the observation is as true of medicine. It is scarcely so long since the accomplished and lamented Hilton Fagge's monumental book appeared, and now we have to welcome another book of first-rate importance, coming to us in English garb, but this time from a German physician. Prof. Strümpell's text-book brings with it conspicuous credentials. Its author is

* A Text-Book of Medicine for Students and Practitioners. By Adolf Strümpell. Translated from the Second and Third German Editions by Herman F. Vickery, A.B., M.D., and Philip Coombs Knapp, A.M., M.D.; with Editorial Notes by Frederick C. Shattuck, A.M., M.D. Illustrated. London: H. K. Lewis.

the learned Professor and Director of the Medical Clinique at Erlangen, and his reputation in clinical medicine stands high by reason of his valuable contributions to neurology. The profession in Germany has given emphatic approval to the work, a third edition having been published in 1886, three years after the issue of the first. Moreover, in America, the translation under review has been adopted as the text-book of Medicine by the Medical Department of Harvard University.

The important feature of this work is the masterly manner in which diseases of the nervous system are described, about one-third of the entire book being devoted to this subject. The various disorders are considered in the following plan :— I. Diseases of Peripheral Nerves ; II. Vaso-motor and Trophic Neuroses ; III. Diseases of the Cord ; IV. Diseases of the Medulla Oblongata ; V. Diseases of the Brain ; VI. Neuroses without known anatomical basis. Each of these divisions is so admirably dealt with, that the whole constitutes an authoritative treatise on nervous diseases, giving a faithful picture of our knowledge thereof at the present day. The chapters are at once ample and concise—the former quality recommending the book to students reading for higher examinations, the latter to busy practitioners who desire to keep abreast with modern neurology.

Whilst thus allowing well-merited praise, we must point out a few defects and omissions suggested by our perusal. Of brain surgery there is none, Horsley's cases not finding mention though localization is well dealt with ; certainly this should be rectified in a later edition. The treatment of neuralgia would be made more complete by allusion to the topical application of menthol, and to subcutaneous puncture of the nerve-sheath (*e.g.* of sciatic) with partial section of nerve-bundles. Alcoholic neuritis is well-described under peripheral nerve lesions, but strangely the neuritis of anæsthetic leprosy is passed over, indeed it is remarkable that so interesting a bacillary disease as leprosy receives no mention either amongst nervous disorders or any other group. The definition of tetanus (p. 510) as "tonic rigidity of the whole body," would

be more accurately rendered "general tonic rigidity with exacerbations." Dr. Strümpell holds to the term "tendon reflex," in opposition to Westphal's "tendon phenomenon:" we agree with the author that the symptom is more likely a reflex than the result of direct muscle stimulation, chiefly because an intact reflex arc is essential for its production, but would point out that Gowers and Waller found contraction follow stimulation in half the time required by physiology. Dr. Strümpell is boldly heretical in the matter of acute bed-sores, and would appear to blame the nurse for their production. He says (p. 555), "we have never been able to convince ourselves of the occurrence of a 'neurotrophic decubitus,' and we believe that every bed-sore is due in the first instance to external influences, uncleanness, and pressure on the skin." Surgeons who have seen bed-sores form on the malleoli of patients suffering from fractured spine are not likely to assent to this creed.

The other branches of general medicine are treated in the same scientific spirit as pervades the nervous section. The author is a strong supporter of modern views as to the influence of pathogenic micro-organisms. He quotes with approval Pasteur's prophylactic inoculation against anthrax (malignant pustule); but, pending further evidence, keeps an open mind as to its value in the case of hydrophobia. The chapter on hæmorrhoids might safely be left to the surgical text-books.

The editor, Dr. Shattuck, has added useful notes, besides writing the articles on Dengue and Yellow Fever.

The translation reflects great credit on Drs. Vickery and Knapp, who have produced a volume which can be perused with pleasure by an English reader, though he must be prepared to find slight Americanisms in orthography. We would suggest that in a later edition Henle's nerve nomenclature be given up; it is confusing to an English student to read of the radial nerve supplying the triceps (p. 532).

We cordially welcome this edition of Dr. Strümpell's work, and confidently recommend it as well-adapted to meet the requirements of students and practitioners.

THE ESSENTIALS OF BANDAGING.*

THIS familiar house surgeon's handbook has now reached a sixth edition, for which it has been carefully revised and has received several additions. The sections on Laryngoscopy and Ophthalmoscopy have been considerably added to, whilst that on Antiseptic Dressings has been entirely re-written.

To criticise in detail a book so well known and of such literary standing would be an act of supererogation. Speaking generally the work is extremely trustworthy. We think, however, it might be improved by adding accounts of Esmarch's triangular bandage, of washing out the bladder with the syphon tube instead of the old-fashioned syringe, of the most simple transfusion apparatus, etc., and by expunging from its pages subjects like the reduction of hip dislocation by pulleys, surely a procedure which no house surgeon in this country is likely to be urgently called on to perform. Several new drawings have been added to the large number which have already appeared in former editions.

 RETROSPECT.

CHILDREN'S DISEASES.

BY ANNIE E. CLARK, M.D.

The Rheumatic Element in Chorea.—Dr. Sturges (Arch. of Pediatrics, May, 1887), points out that the study of children's diseases gives material aid to pathology by exhibiting the birth-kindred of disorders which in their later development have little in common, and thinks this birth-relationship is plainly seen in cases of chorea and rheumatism in children below five years of age. Chorea at this age is rare, and the same may be said of rheumatic arthritis; thus of 248 cases of chorea recorded at

* The Essentials of Bandaging. By Berkeley Hill, M.B., F.R.C.S. Illustrated. Sixth Edition, revised and enlarged. London: H. K. Lewis. 1887.

Ormond Street Hospital, six only were under five, and of 400 cases of rheumatism, collected by Dr. Pye Smith, but two were under this age. Of the six cases of chorea, five were intimately blended with rheumatism, and the consideration of these cases leads Dr. Sturges to the conclusion that the rheumatic element in chorea varies considerably at the several stages of childhood. "It is conspicuous at the very first; apparent in the older children; discernable yet infrequent in adolescence." In the after infancy period of life (three to six years) when rheumatism and chorea first emerge in recognisable shape they appear in such close association, as to justify the statement of the French physician, that the two affections are different manifestations of the same morbid condition, but growth tends continually to weaken this connection and eventually breaks it down altogether. In the examples given of young children we have a group of symptoms, motor, cardiac, and articular, out of which in later life we construct two diseases, but at this early age they are not two but one; later, such subjects will have a special liability to chorea and rheumatism, but which develops will depend on exciting cause, sex and age. Choreia is a child's liability, favouring the female sex; rheumatism a young adult liability with no marked sex preference. Up to a certain age, fright or nervous excitement may cause chorea in a rheumatic subject, or exposure rheumatism in a choreic subject, but soon this double liability ceases, the reign of chorea ending, whilst rheumatism takes wider expansion, and becomes endowed with characteristics which have hitherto been absent.

Zesas and Trendelenburg on the Surgical Treatment of Extroversion of the Bladder. (Lond. Med. Record, June 1887).—Zesas (Centrelbl. für Chir., No. 8, 1887) reports a case in a boy four years of age, operated on by Dr. Niehans, of Berne, by Sonnenburg's method, which consists in dissecting out and removing the bladder, stitching the ends of the ureters to the cleft on the dorsum of the penis, and in covering the defect by flaps of skin. The child made a good recovery, and when seen at the end of two years had improved in his general condition

and remained free since the operation from pain and irritation. Zesas thinks, however, that Sonnenburg's method will be supplanted by that advocated by Trendelenburg in a paper published in the *Arch. für Klin. Chir.*, Band xxxiv., Heft 3. It consists in bringing together the margins of the defect after the cleft in the symphysis pubis has been closed through division of the sacro-iliac articulation on either side, and coaptation by pressure of the two free ends of the pubic bones. Trendelenburg finds that in subjects of ectopia vesicæ of five or six years of age, the separated ends of the two pubic bones can readily be brought together after division of the ligaments of the sacro-iliac joints on both sides, and maintained in this position by continuous compression of the sides of the pelvis by means of a broad girdle. In from four to six weeks from the first operation the margins of the mucous membrane of the bladder may be refreshed and brought together, and owing to the reduced width of the pelvis there will be sufficient integument to allow of free paring and apposition of the raw surfaces, so that the whole defect may be closed with one operation, which, when successful, results in a closed bladder and urethra, lined in every part with mucous membrane.

In the same number of the *Arch. f. Klin. Chir.* Dr. G. Passavant, of Frankfort, has a paper on the anatomy of the parts involved in ectopia vesicæ, in which he suggests approximating the pubic bones by continuous pressure on the sides of the pelvis without any cutting operation.

On some later effects of Rickets.—T. A. Coutts, M.B. (*Brit. Med. Jour.*, June 4, 1887, p. 1207), suggests that many of the neuroses met with in the later years of childhood are connected with a past rachitic condition, although none of the obvious signs of rachitis may be left. Just as in some cases permanent osseous deformity remains, so in others there is permanent injury to the central nervous system, making such children especially liable to succumb to various neuroses. Dr. Gowers has attributed at least 10 per cent. of epilepsy to this cause, and Dr. Coutts has noticed the same connection in cases of chorea and severe headache.

OTOLOGY.

BY CHRISTOPHER LEWIS, M.D.

Reflex Aural Symptoms without Aural Disease, Aural Disease exciting reflex symptoms.—The two cases illustrating the two branches of the subject are—1, irritation of the dental nerves in the bone sockets of a child fourteen months, reflex irritation and suspense of vasomotor inhibition through the otic ganglion, causing dilatation of the tympanic vessels, pressure, and aural pain; and 2, purulent inflammation of the middle ear in a child $3\frac{1}{2}$ years old, with reflex symptoms simulating pneumonia. It is the opinion of the authors (Drs. Blake and Rotch) that the aural lesion of reflex origin has its seat primarily in the upper portion of the tympanic cavity and membrani tympani, and that this can be accounted for by the peculiar distribution of the sympathetic nerves to those parts. Reflex phenomena from the ear to other parts of the air passages are explained as follows:—The irritation of the sensitive fibres of the auriculo-pneumogastric distributed in the meatus, and to the membrani tympani, and is reflected along the motor fibres of the superior laryngeal nerve, exciting on the larynx the act of coughing. When the original irritant however involves the vasomotor fibres associated with the auricular nerve, their impression is conducted to the ganglion of the pneumogastric, and thence reflected through the sympathetic fasciculus to the first cervical ganglion, thence through the nervi molles to the external carotid and to the branches of the mucous membrane of the larynx. In illustration is given a case of middle ear disease causing laryngeal cough, also a case of primary implication of the middle ear in pulmonary tuberculosis. The reflex influences of dentition are considered and explained, and also the reflex connection between the exanthemata is pointed out.—(American Journal of Med. Sci., Oct.)

Epistaxis, posterior nasal tamponade, bilateral suppurative otitis.—Dr. Gelle (Revue Mens. de Laryngol.), attacks the general opinion that death ensues after a posterior nasal tam-

ponade in consequence of cerebral apoplexy, pointing to the fact that the consecutive acute inflammation of the middle ear may be the cause of the fatal issue in a number of cases. He reports a case of a man 55 years of age, in whom the posterior nares had to be plugged on account of severe epistaxis, the plug remained for forty-eight hours. Three days after its removal vehement acute bilateral otitis media developed, with perforation of the membrani tympani. Cure in three weeks. The inflammation is produced by irritation of the middle ear by the putrid fluid caused by the plugging.

Alarming Syncope from Syringing the Ear.—Dr. Hunt, of Liverpool, (Lancet, Oct.), was called to a boy of three years and found him in a state of profound coma, with slow irregular respiration, rapid pulse, lividity of the lips, cold extremities, dilated pupils, to all appearances on the point of death. There was a history of purulent discharge from the ear following an attack of measles two months previously. The mother syringed the ear with a solution of boric acid, and just as the syringing was finished the child fainted. There was no evidence that the child had previously suffered from convulsions. Consciousness returned after an application of mustard to the nape of the neck. Examination of the ear showed extensive destruction of the tympanum, but no sign of caries. The urine was free from albumen

Contributions to the knowledge of Retinitis Pigmentosa.—Siegekeim found among the seventy-three cases of retinitis observed by Magnus, five associated with deaf-mutism, and six with hardness of hearing. According to Weber the ear trouble accompanying the pigmentous degeneration of the retina is most frequently congenital, but certainly the later development in several instances. It may precede the retinal disturbance. In other cases, pigmentous degeneration of the retina is added later to the congenital deafness, or both appear at birth. The brothers and sisters may in addition to the retinitis pigmentosa be also affected with deaf-mutism or hardness of hearing. The author believes that the influence of consanguinity upon closer

investigation will prove to be purely accidental, namely, that it will show itself in families which are already affected with a similar condition. Among the seventy-three cases heredity was found in seventeen. Consanguinity of the parents in nine. The relations between the retinitis pigmentosa and the deaf-mutism are composed as follows:—(a) Retinitis pigmentosa and congenital deaf-mutism are conditions closely allied; (b) Both are hereditary in a high degree, namely, they may be transmitted as such or give birth to organic diseases in the descendants, the ectoderma being considered as the embryogenetic foundation; (c) With regard to the complications which are found with retinitis pigmentosa or deaf-mutism only those organs are affected which develop from the ectoderma.—(Arch. of Otology, Sept.)

A case of complete Cicatricial Closure of the Aural Introitus, Restitution of Opening and Hearing.—Dr. Shirmunski, of St. Petersburg, reports a case of a female patient 21 years of age, in which membranous occlusion of the external meatus occurred after scarlatinous otorrhœa in childhood. A previously performed operation had proved unsuccessful. The introitus when examined was found to be occluded by a radiating cicatricial membrane. When touched with the probe the membrane appeared to be somewhat yielding in the centre. The examination of hearing showed that the labyrinth could not have been changed to a great extent. The operation was performed with a pointed bistouri which had to penetrate the cicatricial tissue five or six mm., in order to reach the extremely narrowed lumen of the meatus. A transverse incision was added, and at last the cicatrix was destroyed with the galvano-cautery. After gradual dilatation with tents during two weeks, a speculum of medium size could be easily introduced. Thickened masses of epidermis and pus were removed from the meatus. A small perforation with granulations was cured with chromic acid. A small rubber tube had to be introduced a few weeks longer in order to prevent reunion, until complete healing had taken place with a permanent opening.

Furuncle of the External Ear.—Dr. Dobney reports a case of a man of 59 years, who had suffered great pain for several days from a furuncle in the left meatus. It was incised and a few drops of pus were discharged. A few moments thereafter he became dizzy, then unconscious and delirious, and went into toxic convulsions, consisting chiefly of opisthotonos. By the next morning he had recovered. He reported that he had had a few "fits" after an injury to the head in childhood, but none since.

Chronic Purulent Inflammation of the Tympanic Attic.—Dr. Spencer (St. Louis Courier of Medicine) has written an interesting article on this intractable complaint, and remarks that the reason the disease does not readily yield to treatment is because it is inaccessible to the ordinary means of cleansing and medication used in the diseases of the lower part of the cavity of the tympanum. The author considers that there are two forms of purulent inflammation of the attic, one characterised by swelling and a tendency to proliferation and organisation of tissue, and the other by a thinning of tissue or tissue waste. In all of these conditions of perforation or destruction when the hyperplastic form of inflammation predominates the edges of the openings and the surfaces of the cavity appear red and swollen; not unfrequently there will be villous projections, papillary growths and even large polypi. When the second form, tissue waste prevails, the edges of the opening are thin and white, and the tissues beyond are characterised by the same appearance. The discharge is often scanty and not found until the attic has been explored; it is then generally dark brown in colour. The second form is the more intractable of the two and is more likely to result in caries of the bone.

Treatment.—In cases of suppuration of the attic presenting polypi and polypoid masses, he advises to curette the mass or masses as high up as it is possible to do so. Immediately after the operation a saturated solution of nitrate of silver is applied by means of a small cotton tuft fastened to the cotton holder, the part is then dried with absorbent cotton. Following this

procedure, before the slough comes away, installations of absolute alcohol, or a saturated solution of boric acid in absolute alcohol are recommended. In the second class of cases the therapeutical requirements are different since a plastic process must be controlled. Peroxide of hydrogen may now be employed, followed by a five per cent. solution of carbolic acid. Nitrate of silver may also be used, but all stimulants must be mild. Dr. Spencer does not believe in a too-frequent use of the syringe, which, although indispensable at times, it may become the means of doing much harm by delaying recovery. "The sooner the syringe is placed in the same category with the paracentesis needle, the sharp curette and Wolf's spoon to be employed when a real indication exists, the better for otology and humanity."

Mastoid Operations.—Dr. Buck in an article in the "Reference Handbook of the Medical Sciences," first considers the so-called Wilde's incision through the integument of the mastoid, down to the bone, as one form of mastoid operation, and then the perforation of the cortex of the mastoid portion of the temporal bone as of course the more important operation. This operation is recommended by Dr. Buck in cases where leeching and a Wilde's incision fail to relieve permanently the pain in the mastoid region. Operation as early as the sixth day is recommended in some cases of mastoid disease, though the question of the operation upon the bone does not usually present itself for serious consideration before say, the tenth day, at the earliest. Dr. Buck states that in all cases of comparatively recent origin we must not forget one well established fact, namely, that the majority of them will, in one way or another, get well without the aid of perforation of the bone. The author holds that in some instances in which the symptoms of meningitis or pyæmia were fairly well marked, the operation has been successful in every way. He finally remarks, that the operation should be urged as indispensable to life and health in those cases of chronic discharge from the ear which have been characterised by frequently

recurring and severe attacks of pain on the same side of the head, and in which an examination leads us to believe that ulcerative action with insufficient outlet for the pus towards the middle ear, or the external auditory canal is going on unchecked. In performing the operation of the perforation of the mastoid cortex, and exposing the antrum, an imaginary line should be drawn vertically through the mastoid tip, and another at right angles to it running through the uppermost boundary of the external auditory meatus and the perforation made close beneath the latter. A drill is preferred to any form of gouge, chisel, or trephine. In the after treatment unobstructive drainage must be maintained.

Lactic Acid in Chronic Purulent Inflammation of the Middle Ear.—Lange (Monatss. f. Ohrenh. 3, 1887), recommends lactic acid, commencing with a 15 % solution which is dropped in once daily, or which is applied with cotton pledgets to the diseased mucous membrane. When this treatment has been carried on for some days without having caused reactive symptoms, Lange makes use of stronger solutions in those cases in which the mucous membrane is considerably thickened or granulating, he, however, rarely uses a stronger solution than 30 %, more concentrated solutions cause pain. The first symptoms which are noticed after using lactic acid are decreasable secretion and early disappearance of the frequently existing fœtor. Small granulations usually get covered with a white necrosed seat and then shrinks rapidly. It is not applied for acute ear inflammation.

GYNÆCOLOGY.

BY JOHN W. TAYLOR, F.R.C.S.

Tamponnement of the Vagina.—Several papers of American origin have been recently written on this subject, and in a somewhat over-elaborated article by Dr. Engelman of St. Louis (published in the June and July numbers of the American Journal of Obstetrics), the questions of the best substance to be employed, and the method of application are very fully discussed.

In France, Vulliet (*Journal de Med. de Paris*) and in Germany, Fritsch (*Volkmann's Sammlung*) have been writing on the subject of uterine and vaginal plugging. The chief points worthy of notice in this literature are these:—

(1) *Non-absorbent* wool, cotton or gauze is recommended as the material for the tampon.

(2) This should be introduced *dry*.

(3) Antiseptic powders and other drugs may often be used with advantage to medicate the tampon.

(4) If the parts be thoroughly clean at the time of application, such a medicated tampon may remain *in situ* four or five days without becoming foul.

Fritsch recommends the use of iodoform gauze; Vulliet, the use of salol and salolized cotton wool; Engelmann uses wool specially prepared with tannin, alum, iron, iodine, salicylic acid and other various drugs. The present writer has for several years used the medicated wools of the London Throat Hospital Pharmacopœia, when a medicated tampon has appeared to be advisable. The tannin-wool, when freshly prepared according to this formula, is worthy of special recommendation. It forms one of the best and cleanest astringent or hæmostatic applications that the surgeon can use.

A New adjustable Speculum and Retractor.—An ingenious but very simple self-acting instrument, which will take the place of an assistant during all vaginal operations in the dorsal position, is figured in the May number of the *Amer. Jour. of Obsts.* It was exhibited by Dr. G. E. Jones, at a meeting of the Obstetrical Society of Cincinnati, and is made by Autenrieth, of Cincinnati.

The Position for Gynecological Examination.—At the Dublin meeting of the British Medical Association, Dr. Macan made a vigorous defence of the method of bimanual examination with the patient lying on her back; contending that this method "has regenerated modern gynæcology and raised the whole standard of diagnosis."

That this method may be combined with due regard to

decency and comfort is shewn by Dr. Macan's practice at the Rotunda Hospital, but it will probably be restricted in English practice to operative examination or examination under anæsthesia.

The use of Corrosive Sublimate Injections.—In a paper on the Washing out of the Puerperal Uterus, Dr. Halliday Croom has collected reports of four fatal cases after mercurial irrigation, and thirteen cases followed by serious symptoms. The strength of the solution, when used, should not be stronger than 1 in 5,000. In cases of anæmia and renal disease, corrosive sublimate should be avoided altogether.

Nephritis caused by Polypus of the Cervix Uteri.—An interesting case is recorded by Dr. Jouin, in which a fibrous polypus of the cervix caused compression of the ureters and renal disease. The patient had been treated by other practitioners for heart disease, emphysema, and albuminuria.

Dress as a factor in the production of Gynæcological Disease.—A fresh attack on the pernicious practice of tight-lacing was made by Dr. Neftel of New York, in a paper read by him at the International Medical Congress, and published in the Lancet of October 8th. He maintains that general arterial anæmia and venous congestion of the abdominal and pelvic viscera are directly produced by compression of the chest. The latter also forms a very practical predisposing cause of renal disease and phthisis. Dr. Neftel illustrates his thesis with some experiments on animals.

Cocaine in the Vomiting of Pregnancy.—In the Lancet of October 15th, Dr. Duncan publishes three cases of vomiting due to pregnancy, which were cured by painting the vaginal roof and cervix with a 15 per cent. solution of cocaine. In two of the cases an application was made to the interior of the cervical canal.

Local Massage in Gynæcology.—(The "method of Brandt.") This is stated by Prof. Fenter and Prof. Schultze of Jena (quoted by Dr. Hart in the Amer. Jour. of Med. Sc. for this month), to give "valuable results in stretching and slackening of parametric

exudations as well as *restoring fixation in prolapsus uteri*." Cases are cited in which complete prolapse of the uterus is stated to have been cured in one month. More information is required respecting this.

Local News.

QUEEN'S COLLEGE.—The Inaugural Conversazione of the present Session was held in the College on the evening of October 3rd, under the presidency of the Rev. Canon Wilkinson, D.D., who, after moving a vote of condolence to the family of the late Mr. Samuel Berry, distributed the College Prizes to the students successful during the past year. In the absence of Professor Pemberton, President of the Clinical Board, Dr. Wade presented the Clinical Prizes for the year, and afterwards gave a short and interesting address. The affairs of the College are in a most flourishing condition, and the percentage passes of students presenting themselves for "examinations" during the year has been as high, if not higher than that of any other teaching body in the United Kingdom. The number of fresh entries for the current year is sixty-one, being with one exception the largest number registered by any provincial school.

THE SOCIETIES.—The work of the medical societies is now in full swing and all report an increase in the number of members. The first meeting of the Birmingham and Midland Counties Branch of the British Medical Association was held on the 13th, under the presidency of Mr. Lawson Tait; that of the Pathological and Clinical Section, under the presidency of Dr. A. E. Underhill on the 28th; that of the Midland Medical Society, under the presidency of Mr. Ross Jordan on the 19th; and that of the Queen's College Medical Society under the presidency of Dr. Grinling on the 12th. We would remind our readers that the customary "Inaugural" Meeting of the Midland Medical Society will be held on Monday, November 9th, at 7 o'clock in the Evening, at the Grand Hotel, Colmore Row, and that Dr. Sydney Ringer, F.R.S., will deliver the Annual "Inaugural" Address on the occasion, taking for his subject

"The antagonism of Drugs and its bearing on the administration of Medicines." We congratulate the Society on its fortunate choice of a lecturer, and on the subject which Dr. Ringer has been pleased to choose for his discourse.

New Books, etc., Received.

BOOKS.

- The Diseases of the Bible. By Sir RISDON BENNETT, M.D., LL.D., F.R.S. London: The Religious Tract Society. 1887.
- Vaccinia and Variola; a Study of their Life History. By JOHN B. BUIST, M.D., F.R.S.E. London: J. and A. Churchill. 1887.
- Intubation of the Larynx. Reprinted from the Medical Record. New York: Trow. 1887.
- Hypodermic Medication. By BOURNEVILLE and BRICON. Translated by A. S. CURRIE, M.D. London: H. K. Lewis, 1887.
- Index of Surgery. By C. B. KEETLEY, F.R.C.S. Fourth Edition. London: Smith, Elder, and Co. 1887.
- Pathology and Treatment of Ringworm. By GEORGE THIN, M.D. London: J. and A. Churchill, 1887.
- The Diagnosis and Treatment of Eczema. By TOM ROBINSON, M.D. London: J. and A. Churchill. 1887.
- Les Sulfureux dans la tuberculose laryngée. Par Docteur CHARAZAC.
- Surgical relations of the Ileo-Cæcal Region. By J. McF. GORTON, M.D. Atlanta, Georgia.
- Pathology, Diagnosis, and Treatment of Perforation of the Vermiform Appendix. By J. McF. GORTON, M.D. Chicago: Office of the American Medical Association, 1887.
- Digestion and Indigestion. By DE QUINTIN. Leicester: Provincial Medical Journal. 1887.
- The Natural History of Cow-pox and Vaccinal Syphilis. By CHARLES CREIGHTON, M.D. London: Cassell and Co. 1887.
- Handbook of Gynæcological Operations. By ALBAN H. G. DORAN, F.R.C.S. Illustrated. London: J. and A. Churchill. 1887.
- Contributions to Clinical and Practical Medicine. By A. T. H. WATERS, M.D., F.R.C.P. London: J. and A. Churchill, 1887.

JOURNALS.

- New York Medical Record.—The International Journal of the Medical Sciences.—New York Medical Abstract.—The Medical Age.—The Boston Medical and Surgical Journal.—The American Practitioner.—The Western Medical Reporter.—The Therapeutic Gazette.—The Medical Herald.—The Archives of Pediatrics.—The Canadian Practitioner.—American Journal of Insanity.
- Le Progrès Médical.—Journal de Médecine de Paris.—Centralblatt für Kinderheilkunde.—Journal de Médecine et de Chirurgie.—Revue de Médecine.
- Edinburgh Medical Journal.—The Indian Medical Journal.—The Bristol Medico-Chirurgical Journal.—The Glasgow Medical Journal.—The Journal of Microscopy and Natural Science.—London Medical Record.—The Practitioner.—The Journal of Laryngology and Rhinology.—The Journal of the British Dental Association.

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ORIGINAL COMMUNICATIONS.

VIENNESE NOTES.

BY ARTHUR FOXWELL, B.A., M.B. CANTAB.

The General Hospital.—Perhaps a few words concerning the building itself will not be out of place. It is situated in the Alser Strasse close to the best portion of the city—the University, Town Hall, Parliament House, Royal Palace, Museums, etc.—and it is also very near the centre of the inner town. This in itself is a great advantage to strangers, for we can obtain lodgings in the best district, which are at the same time central, both for pleasure and work. As Vienna, notwithstanding its brightness, lack of smoke, and magnificently wide streets and boulevards, is essentially a City of Smells this is no small gain. Every street is plentifully dotted with sewer vent-holes, and up each of these rushes a constant current of air which has so evil a smell that reflex cessation of breathing is produced so soon as ever it reaches one's nostrils. Inside the houses the conditions are much the same, for I am told that none, not even the best, has any closet which is trapped, so that on raising the handle one is sometimes almost knocked down by the force of the malodorous blast. Still it must be admitted that these are but momentary nuisances, and as yet I have come across no persistent foulness; but this happy lacking may be due to the wind which, though true to its acknowledged inconstancy, is yet never weary, and tires your chilled frame with its never ceasing boisterousness.

The street frontage of the Hospital is 200 yards in length and forms one side of the first or chief court. Of these courts there are nine ; all are built in much the same style, and of them the first may be taken as a good example. It is a perfectly plain, unpretending structure with brown-tiled roofs, whitewashed walls, and ordinary dwelling-house windows, which are of course double. The buildings are usually of three stories, but the upper one is sometimes merely an attic and not used for patients. The court itself, 200 yards square, consists of grass plots with trees intersected by gravel paths of various widths. The trees are numerous but not large, the grass is in good condition and the paths are well kept.

The various clinics are attached to the wards of the corresponding Professors : indeed one of the wards itself often acts as the teaching room, there being a small Professor's den into which, for the short discourse at the end of the hour's practical instruction, the whole class have to squeeze themselves.

The patients are all dressed in a Hospital garb—that is, those who are able to be up. This consists in the case of males of a blouse reaching to the knees and girdled round the waist, made of a material resembling blue striped bed ticking ; the trousers are loose and short and of the same material, while the feet are bare or swathed in bandages ; the slippers are of rough leather with heelless uppers as well as soles. The women have a loose gown of thick unbleached calico (?), with similar slippers. Beneath these outer garments I have never been able to discover more than one calico shift ; yet, even in this weather, with the thermometer below freezing all the day, and the gusty wind raising clouds of dust, they stroll about the courts bareheaded, their bodies unencumbered by any further applications, unless these be of a surgical nature. Any sight more calculated to give one a psychical rigor I never saw.

But of the patients themselves I cannot speak too highly ; they are the very patterns of good behaviour. Docile submission itself are they to all the rigorous demands made upon their patience in suffering ; ever ready with a sympathetic smile—

not seldom through tears—to meet your penitent “Bitte,” when through clumsy ignorance your unnecessary examination has caused them needless pain ; and this is done not once, but often, for each is passed through the unskilled hands of some twelve to twenty students. At the same time they are most intelligent and can give you succinct and accurate accounts of their disease, often correctly using medical terms, and stating the amounts and nature of the drugs and ointments they have been taking and using. Dumb, as sheep before their shearers, but when their mouths are opened it is to have quite a friendly chat with the Professor, for the rudest amongst us cannot but feel that they must needs be treated with sympathetic equality. To these virtues the out-patients add one which may well make every English out-patient physician or surgeon envy his Viennese brethren, for it is that of delightful cleanliness ; not even in the skin clinic have I ever seen a dirty patient. The babies are decked out as for a christening : the underlinen of most is as clean as one’s own, and the soft white skins of the women are quite captivating in their bright freshness. All to whom I have spoken—both American and English—gratefully, with one accord, recognise how vastly superior in personal cleanliness are the Austrian poor to their English speaking equals ; and yet I suppose the average income of our out-patients must be considerably in excess of these Austrians, while certainly living is no cheaper here than in London.

GENERAL MEDICINE.—Dr Heitler stated the other day that he had never seen any good result follow the use of pilocarpin in renal disease after ascites had once set in. On further questioning him afterward he admitted that it produced its physiological effects of increased perspiration and urination, but believed these to be purely temporary and to have no beneficial result, whereas the depression consequent upon the use of the drug was not seldom alarming. He used it subcutaneously in doses of gr. $\frac{1}{4}$ administered every other day.

PATHOLOGY.—The celerity with which the *post mortems* are

performed is enviable. Each pathologist has two porters to assist him, ready to saw the ribs, wash out the cavities, hold back the parts, &c. These porters are themselves naturally far better up in naked-eye appearances than most unqualified students. I shall not forget seeing one of them bisect a kidney, strip off the capsule, glance with the eye of a connoisseur at the sections, and then cast it scornfully away as a poor normal thing unworthy of notice.

All the organs are examined *in situ*: even the intestines in a case of typhoid being opened in this position, only the diseased portions being afterwards removed for more critical observation.

They have an excellent way of removing the pelvic organs. The peritoneum is completely reflected from the pubes to the diaphragm first of all: it is surprising to see with what ease the pelvic viscera may be taken out when this has been done. The kidneys are also examined in this way when a gross lesion is suspected. There seemed to be no difficulty whatever in thus dealing with the peritoneum.

Dr. Lustgarten, Kaposi's assistant, told me to-day that they do not yet accept as proved the identity of lupus and tubercle though their pathological unity is very probably a fact. That tubercle very frequently follows lupus goes for nothing as tubercle is so common a disease in this country; what one wants are instances of tubercle arising in cases of lupus in countries where tubercle is unknown. One fact against their unity is the occurrence of a rare ulceration of the skin, running a rapid course quite distinct clinically from lupus, arising in phthisical patients, and constituting indeed a true tuberculosis of the skin; but this is so rare that it has not yet been sufficiently compared with lupus. On the other hand he showed in his clinic a lupus nodule from the deeper layers of the cutis which under a low power was identical histologically with a miliary tubercle and contained a large, exceedingly well defined, giant cell. They also occasionally find, in sections of lupus, after long searching, bacilli, which cannot be distinguished from

the bacilli of tubercle neither morphologically nor by their reaction to staining fluids ; but these occur very sparsely, nearly always in ones and twos. In one preparation they discovered a group of eight, but this Lustgarten described as a unique specimen. They have not yet succeeded in directly cultivating these bacilli, but in rabbits they set up morbid processes undistinguishable from those arising from the bacilli of tubercle.

DISEASES OF THE SKIN. — *Erythema multiforme*. — Hebra gave us a neat diagram as a mnemonic of some of the varieties of this lesion : starting from Erythema maculatum or Roseola, its simplest form, it could pass through various stages of intensity both in depth and superficies : varieties of equal depth he placed in the same horizontal line, and those of equal superficies but varying depth in perpendicular lines, thus ;—

Erythema maculatum, or Roseola.	Erith. mac. iris, or annulare.	E. mac. gyratum, or circinatum.
Erythema papulatum.	E. pap. iris, or annulare.	E. pap. gyratum, or circinatum.
Erythema vesiculosum, or Herpes.	E. vesic. iris, or Herpes iris.	E. vesic. circinatum, or Herpes circinatum.

This is practically the same nomenclature as that used by Kaposi in his Treatise, and is meant to emphasise the position of Herpes as merely a variety of *E. multiforme*.

Scabies.—"The eruption is limited to those portions of the body between the nipples and knees : *ergo* scabies," says Hans Hebra. This distribution both he and Lustgarten assert is pathognomonic and quite sufficient of itself to distinguish it from other eczemas ; it is more as a matter of curiosity that they smear ink over the areas of the hands and fingers where "runs" are suspected so that the black dotted lines left when this is rubbed off may indicate the subcutaneous course of these.

Syphilis.—The general treatment here both for primary and secondary syphilis is a centigramme (gr. $\frac{1}{6}$) of corrosive sublimate injected into the buttocks every other day or daily. The solution used is

Sod, Chlor.	6
Hydr. Bichlor.	1
Aq. dest.	100

Dr. Kohn, Hebra's assistant, told me he had never known any abscess, etc., follow these injections, a result he attributed to the care taken to plunge the needle well amongst the fibres of the glutei. It is the *subcutaneous* injection of morphia he thinks which is the cause of the sometimes unpleasant local sequelæ. Mucous patches on the mouth, etc., are treated by one or two squirts from a hand-spray containing the following solution :—

Hydr. Bichlor. 2
Æth. Sulph. . 100

DISEASES OF CHILDREN.—*Pleuritic effusion.*—Prof. Monti showed a little girl of ten, with evident dyspnœa, and, according to his own examination, the apex displaced to the middle line with absolute dulness and absence of breath sounds below the scapular spine on the left side, whom he wished still to be treated as an out-patient, telling the mother to keep her in bed and poultice her every two hours for a few days, and then bring her to see him again when he would remove the fluid if it had not meanwhile decreased. The symptoms were of one week's duration. Such a case in England would, I think, be at once tapped, or at least admitted and carefully watched.

Addison's Disease.—Another interesting case was a boy of ten, suffering from this disease in a well marked manner, whose brother had died at much the same age one year previously. Prof. Monti had only seen one other such case. Two American friends, both of them having been resident in Hospitals, tell me they have never seen a case of Morbus Addisonii of any description. One would think, therefore, that it must be a much rarer lesion in American than English hospitals.

The Professor pleased me much by his thorough method of examining a stool which an infant passed during his exhibition of its morbid condition to us. It was an ordinary dyspeptic stool of yellow soup with white flakes ("crumbs" he called them) of curdled milk, but the diaper was gravely taken up in his hand, its contents first carefully smelt, and then the anatomy of these

most exhaustively dealt with, after which the stool was passed round the whole class with an earnest injunction to accurately study its characters. It would be greatly to the advantage of the English student were he always impressed with the necessity of examining such unsavoury details.

THE TREATMENT OF BURNS.

BY H. LANGLEY BROWNE, F.R.C.S. ED.,
SURGEON TO THE WEST BROMWICH HOSPITAL.

It is now nearly twenty-five years since I first saw a burn ; it was in 1863, and I had just commenced my apprenticeship, when one evening a message came that three men had been burnt by an explosion of firedamp, and I went to see them with a man who had recently finished his work at the London Hospital. We found the men severely burnt. They were working, as miners do work, with nothing on except their trousers and boots, and so when they were enveloped in a sheet of flame the whole surface of the body above the hips was injured by the effects of the heat. I was told that the men would certainly die, that cases where half or even less than half of the surface of the body was burnt always did die ; but time showed, much to my friend's amazement, that this rule had its exceptions, for the three men recovered, and their recovery was rapid. For ten years after this I was constantly seeing burns from the same cause. Miners were very careless, and would use naked candles, and no amount of experience of explosions seemed of any warning to them. All these burns were treated at their homes in the same way. No attempt was made to exclude air from the burns ; they were douched constantly and liberally night and day with linseed oil and lime water until the appearance of suppuration, when calamine cerate was applied night and morning, and a lump of blue stone was kept handy with which to touch exuberant granulations. This method of dressing was so strongly ingrained by custom that the men

themselves resisted any attempt which could be made to induce them to change it for the ordinary plan, viz., the oiled rag, cotton wadding, and bandage. Severe burns were frequent but fatal ones were rare. If death occurred it was generally from shock, and took place within forty-eight hours, or from complications involving the respiratory organs—laryngitis, bronchitis, and pneumonia; these terminating fatally before the end of the second week. The latter complications, bronchitis and pneumonia, seemed to depend much more upon the inhalation of flame or of the consequent choke-damp than upon the position or severity of the burns of the trunk. It is stated that position of the burns on head, chest, or abdomen, has much to do with determining the kind of after complication, but I think this theory is open to question. The non-fatal burns always tended to rapid recovery. Suppuration was not profuse. Cicatrices did not show much disposition to contract. The longest recorded case I can find in my books is sixty days; one very severe burn this year recovered in forty-nine days. Gastric or intestinal complications were very uncommon, and generally due to errors of diet.

In 1873 our Hospital, which was opened in 1871, was becoming well-established, and the smaller collieries took the opportunity of saving the expense of surgeons and began to send their burns to the Hospital. The larger collieries continued to have their men treated by their own surgeons at home, and so one became able to notice if there were any differences in the progress of burns under the different conditions of treatment. One reasonably expected that the better dressing and nursing procured in the Hospital would give better results than one could get outside, but with years of experience it becomes apparent that this is not so. Cases die which should not die; complications are much more common, and the duration of suppuration and consequent after-treatment is immensely extended. Six cases, taken quite without design, show this. They were under treatment 147, 85, 137, 135, 104, 209 days. In two instances eleven men were brought in at the same time. In the

first instance nine men died, and in the second ten, and some of these I believe were preventible deaths. The course was much the same in each fatal case. Sickness, occasionally diarrhoea, then sudden increase in temperature, albuminuria, delirium, coma, and death ; or for two or three days temporary improvement, then the same train of symptoms again. All these years, in the same wards with these burns, we had other cases—amputations, excisions, herniotomies, and compound fractures, doing extremely well, a preventible death (I think I may say) occurring in none of them. We have then burns outside the Hospital usually doing well ; burns inside often going wrong ; and other severe injuries in the Hospital giving no anxiety.

A similar condition is shown by the records of obstetric practice. Lying-in Hospitals with a high mortality—alteration in treatment in these hospitals causing an immense improvement in results ; and out-door practice extending over many years, and numbering hundreds of cases, with no mortality at all. We may, therefore, fairly infer that wounds when massed together in large numbers for a sufficient length of time become subject to morbid alterations to which they are little liable when isolated, and that these changes may be much influenced by treatment. In other words, these wounds are liable to become infected and infectious. Now I may be deficient in the scientific use of the imagination, but I cannot think of any possible definition of infection of any kind except the one which attributes it to the entrance of micro-organisms. Belief in infection without belief in the germ theory of disease requires a kind of pathological spiritualism which I do not possess. I will therefore assume that these burns are liable to septic influences and that their complications are due to this ; and I think if we examine a little closely into the complications and causes of death we may find good grounds for holding this opinion.

When death occurs within forty-eight hours after injury it occurs from extreme prostration and from congestion of the brain ; and when we remember that the skin is really an external

nervous system largely concerned in the education of the brain, and that it is evolved from the same original layer as the internal nervous system, we can easily understand how severe injury to it is attended with symptoms of severe shock. The stimulus may be so strong or succession of stimuli so frequent that the brain may refuse to respond to them, and a condition of stupor fortunately supervenes in which pain is not felt. Local congestions are found due to vaso motor pareses, and these may be the source of further inflammatory changes. Convulsions often occur in burns in children.

If shock is recovered from there is risk for a few days from pulmonary, cerebral, or gastric congestion, developing into acute inflammation, and undoubtedly death may take place from any of these conditions without any septic complication. But if the period passes during which these conditions exist and are recovered from, and a burn instead of progressing begins to retrograde, we begin to find complications arising which are undoubtedly due to sepsis, and these are very high temperature, albuminuria, pulmonary and renal inflammation, profuse suppuration, and, I believe I may add, gastric or duodenal ulcer.

After a wound becomes septic the coagulated blood in the veins in its immediate neighbourhood becomes septic too, and breaking up into clots may undoubtedly be carried as emboli to the right side of the heart and thence through the pulmonary capillaries into the systemic circulation (Victor Horsley, Weber), there they become centres of further septic fermentation and cause the production of poisons which are probably ptomaines, which the stomach, bowels, and kidneys make constant efforts to eliminate, and which they sometimes succeed in doing although they become congested in doing it. The high temperature, if the poison is thrown off, then subsides, and the albumen disappears from the urine. This may occur several times during the course of a burn; high temperature being always followed by albuminuria until death may occur from hyper-pyrexia— 109° F. has been often noted—or from renal failure and true uræmic coma, or from inflammations due to

infarcts. But death may also occur from exhaustion due to profuse suppuration, and this is, I believe, due to the irritation of cocco-bacteria. Profuse discharges are probably always due to the presence and irritation of micro-organisms as instanced in cholera, dysentery, gonorrhœa, leucorrhœa, and influenza.

That the gastric or duodenal ulcer depends upon septic embolism is probable, and I hope this question will be taken up by some skilled bacteriologist. Anyhow, the theory that they depend upon the action of acid gastric secretion upon parts through which alkaline blood has discontinued to circulate, although vouched for by high authority, seems quite improbable. We do not often see gastric ulcer in chronic alcoholism where congestion is constant.

Now if you will admit that the reason why burns inside a hospital vary from those outside is because they are more subject to septic conditions, I can very easily explain why other injuries treated in the hospital do not follow in the same track. It is because the latter are always treated antiseptically and burns are not. When I say antiseptically I mean by Lister's complete method, including the spray (for I am certain we do not get the same safety without the spray), and I believe a better method of treating wounds has not yet been devised. If then the putrefactive changes in burns and the consequent sepsis are to be avoided, what treatment can assist in doing this? No dressing can be worse than one which is neither absorbent nor antiseptic. Listerism is supposed to be attended with the risk of carbolic poisoning, but I believe this risk is overrated, and it is one which cannot be so great as the risk of septicæmia. Morton, of Philadelphia, states that carbolic acid is safe, that it relieves pain, and that mixed with oil in the proportions of 1-12 and applied on lint or rag covered with waxed paper,* he has used it in hundreds of cases without any symptom of carbolic poisoning being noted, and with very good results. A very good dry dressing is formed

* This paper is prepared at a small cost by the makers of antiseptic dressings.

by using boracic acid in powder, such as the sanitary rose-powder, dredged freely over the burn, which is then covered by absorbent tissue. But the most important factor in successful treatment must be isolation. If once we can treat burns like ovariectomies there will be an enormous saving of life, and it is well worth striving for, for the mortality is high, about 26 per cent., according to Holmes. We have had in the Hospital 571 burns with 93 deaths, a mortality of over 16 per cent., and this mortality would be considerably reduced if we could once eliminate septic infection.

There are many points in the history and treatment of burns I have not touched upon. I need not mention to you that the use of opiates should be limited, or that flagging kidneys may be helped by diuretic drinks, I am only speaking of variations I have observed in my own practice; but I am sure many of you will not be content, as our text-books seem to be, to accept for burns only what you have long discarded in the case of other injuries, viz., the pathology of forty years ago; and the discussion of this subject will do much to give us clearer views of the causes of septicæmia and profuse suppuration, and to improve our treatment of these common injuries.

THE PATHOLOGY AND TREATMENT OF ABORTION.

BY J. A. LYCETT, M.D.

(*Continued from page 221.*)

Threatened Abortion.—The stage of gestation influences the premonitory symptoms, which indicate that abortion is about to occur, thus, during the earlier period, hæmorrhage is not only commonly the first symptom, but it is apt to be profuse, whereas, the nearer to term gestation has advanced, is pain more likely to be the predominant early symptom; though in primiparæ abortion during the earlier period of gestation is attended with

more pain, owing to the rigid condition of the cervix.* It is oftentimes by no means easy to determine whether the hæmorrhage proceeds from an intra-uterine conception, there being so many other conditions with which it may be confounded, especially when it is slight. Dysmenorrhœa may be a symptom of, or simulate an abortion, in the early period of gestation, but when independent of conception, the hæmorrhage generally relieves the pain. In ectopic gestation, which fortunately is not common, there is sometimes slight hæmorrhage from the decidua, at the period corresponding to the menstrual epoch, and when rupture occurs; hæmorrhage may proceed from the tube through the uterus. In normal uterine gestation slight hæmorrhage sometimes occurs during the earlier stage, for several successive periods, corresponding to the menstrual epoch in weakly relaxed women, who have never aborted. An intra-uterine polypus may exist with, or without pregnancy, though conception rarely occurs while a polypus is more or less filling the uterine cavity. I have several times met with hæmorrhage from this cause in which the woman was anticipating an abortion. The uncertainty which oftentimes attends the diagnosis of a threatened abortion, and its importance, must be my apology for thus digressing upon some of the errors which may be committed.

When satisfied that the symptoms which may be present are really due to a threatened abortion, the treatment should be governed by the state of the conception and the condition of the woman. Presuming there are indications why the abortion should not be arrested—as where the conception is not only dead, but undergoing putrefactive change, also where from certain systemic affections on the part of the woman, gestation cannot proceed—it would be obviously unwise to endeavour to prevent the uterus throwing off what has now become a source of danger to life. Certain dietetic, and hygienic measures are applicable

* Mr. A. Hands records a case of abortion at the third month of gestation, in which he was obliged to incise the os in four places owing to the unyielding and cartilaginous character, though the expulsive pains were severe. Vide *British Medical Journal*, July 30, 1887, page 239.

to all cases. Stimulants will rarely be required, the room should be kept at a moderate temperature, about 60° F., the patient being lightly covered with bedclothes. Rest is essential, both of mind, and body, in the supine position, without much elevation of the head and shoulders. Sometimes treatment directed solely to remove the cause will be sufficient (where the symptoms are not severe) to avert abortion.

Should the amount of hæmorrhage be such as to require attention, uterine astringents, and sedatives may be given, as the liquid extract of "vinca major," or the same preparation of the black haw, "*Viburnum prunifolium*," in one drachm doses every one to four hours, according to the urgency of the symptoms. I prefer the latter, but if there arise much dryness of the throat, dimness of vision, or headache apart from anæmia, it should be either discontinued, or given less frequently and in smaller doses.* If the hæmorrhage is severe, or has come on suddenly in a profuse manner, gallic acid should be given, in conjunction with the black haw in ten grain doses. If the woman is of a nervous temperament, or had some psychical influence to disturb her, the bromide of potassium may be given in twenty-grain doses, two or three times only, or opium, which latter is especially valuable if much pain is present, without dilatation of the cervix or noticeable hæmorrhage, and its administration is not contra-indicated from systemic disease. Should, however, the cervix be dilating with indications of the abortion progressing, opium had better not be given. The effect of cold application would be to excite uterine contraction by reflex action, therefore, I question the advisability of its regular use in threatened abortion; besides, the cold by constricting the superficial vessels, would tend to drive the blood to the internal organs. Cold, to affect the uterus by the temperature alone, would have to be so great, as to be a question whether such a

* When abortion is actually in progress, marked by pain, hæmorrhage and expanding cervix, the black haw in no way checks the action, but from the character of the abortions in which I have administered the drug, I am inclined to think the hæmorrhage has been somewhat controlled.

remedy would not prove a greater danger than that for which it was applied. I have not yet resorted to a vaginal tampon in threatened abortion to arrest hæmorrhage, and consider that such a measure, irrespective of the necessary movements of the woman, would be injurious, as the disturbance would be calculated to remove clots—nature's tampon—and thus cause a renewal of the hæmorrhage, and probably stimulate the uterus to action, which so far, it should be the object to avoid. For the same reason a vaginal examination must be carefully conducted, and not oftener than necessary—observing strict cleanliness.

Though I have many times been successful in preventing abortion, yet cases occur, however promising at the onset to be arrested, will inevitably end in the uterus casting off its contents, as it is impossible to estimate the extent to which the vitality of the conception has been compromised. When success has attended the immediate efforts, so far as to arrest hæmorrhage and pain, treatment must be continued to remedy if possible, the causes which have been in operation to produce the threatening symptoms, and above all, not to allow the woman to get up too soon, or be exposed to any undue physical and psychical influences.

Treatment of inevitable Abortion.—The majority of cases of abortion do well even without skilled attendance as regards the immediate consequences, but sometimes the management greatly taxes the judgment and skill of the medical man, and in the absence of competent assistance death may occur from the accompanying hæmorrhage. It is only in neglected cases that a fatal result may occur from hæmorrhage, but the instances where the general health has more or less suffered are indeed numerous, from the cases I am constantly seeing in women who have treated the accident too lightly. Death occasionally takes place from septic sequelæ, being the chief dangers against which treatment has to be directed, owing to the liability for a portion of the products of conception to be retained, and thus become a nidus for future mischief. Treatment must be governed

according to the general health of the woman, stage of gestation, the symptoms, and condition of the neighbouring structures. No fixed plan of procedure is rational, hence the chief reason why writers have apparently differed, especially respecting those cases where difficulty has arisen. Some assistance will be afforded by ascertaining the period at which the development is arrested, being a guide to finding out if that which is expelled comprises a complete or incomplete abortion.

In the management of abortion, the chief objects to be kept in view are :—Firstly, to control the hæmorrhage ; Secondly, to relieve pain ; Thirdly, to dilate the cervix ; and Fourthly, to empty the uterus. A certain amount of hæmorrhage is inevitable, and so long as it remains moderate with rhythmical pain, no active measures are required for its control, unless the patient is already very anæmic and weak ; when either from these causes or the extent of the flow, it is likely to prove injurious, mechanical means must be employed, besides carrying out such indicated measures mentioned when the abortion is threatening. How this is best performed is a *vexata quæstio*. The rational and effectual measure is to plug the cervical passage, which not only controls the hæmorrhage but assists in dilating the cervix. During the earlier months of gestation it is important to keep the cyst, if possible, entire, as such by its bulk and consequent pressure upon the lacerated vessels materially aids in checking the hæmorrhage ; the blood too being retained in-utero also helps to prevent a rupture of the cyst. Ergot, or any other ecbolic, at this stage should be avoided, as in all probability, especially if the membranes are thin, rupture will occur, thus complicating the case, as the hæmorrhage generally increases through the vessels losing the support which the sac affords, and the contracting cervix renders it more difficult to empty the uterus. If, however, the cervix is well dilated, with a portion of the ovum protruding, ergot may not be attended with harm, as probably, with a little assistance, the whole can be removed. Great judgment is required in the administration of this drug.

Women when aborting are generally more or less nervous,

and if pain is a prominent symptom—which may be the case in those who have not previously gestated to or near term—an anodyne will be indicated, as bromide of potassium, either the extract or tincture of Indian hemp, gr. $\frac{1}{4}$ of the former or m. v. of the latter every two to four hours; and in more advanced pregnancy the hydrate of chloral, and less frequently opium. As a suppository, morphia, $\frac{1}{8}$ or $\frac{1}{4}$ gr. per rectum; or per vaginam, applied to the cervix, atropine gr. $\frac{1}{12}$ either with hydrobromate of conia gr. $\frac{1}{4}$, or the fluid extract of conium fruit m. iv., which is considered by Dr. Wood, in his Treatise on Therapeutics, to be the only reliable preparation of conium.

Various materials have been employed to mechanically dilate the cervix and check the hæmorrhage—vulcanite and wooden plugs, tents of laminaria, tupelo, or sponge. I prefer the last named for this purpose; introducing the largest possible, but great care must be exercised that such tents do not convey any thing to become a source of septic mischief. When properly prepared they are safe, as the danger is not in the nature of the material, but from imperfect cleansing, the condition of the uterus, adjacent structures, and the state of the woman.

Previously to inserting a tent, it should be smeared over with an equal portion of a mixture of terebene and vaseline and after introduction, place against the cervix through a speculum a large tampon of lint soaked in some antiseptic, as glycerine with carbolic acid; or if there is much hæmorrhage, the same combined with either tannin or alum. Iron-alum was recommended some years ago by a Welsh medical man as being a better styptic. The tampon serves not only to keep the tent in situ, but aids in preventing decomposition of the discharge in the vagina. If the hæmorrhage is not profuse, and the woman from her condition will allow of the necessary movements, it is an advantage to irrigate the vagina before introducing the tent, using a weak hot solution of perchloride of mercury (1–3000) to (1–4000). Cases have been published where the mercury has been absorbed in sufficient quantity to produce severe toxic symptoms, and Drs. Dakin

and Halliday Croom have collected reports of many which were fatal (*vide* Obstetrical Transactions, Vol. xxviii., 1886, p. 281), but I have employed it, either personally, or under my direction—I may say hundreds of times—without observing ill-effects. Certain precautions are, however, necessary in regard to the mode of administration, and that there exists no systemic condition to contra-indicate its use. When irrigation has to be frequently repeated Condyl's fluid suitably diluted may be substituted, as the mercurial should not be employed oftener than once a day, and not stronger as a uterine or vaginal wash than (1-3000), even this strength will sometimes occasion disagreeable smarting if any part of the passage is lacerated, as may occur after delivery at term.

To save trouble, a stock-supply had better be always kept. Formerly, I dissolved the powdered mercury in an equal part of glycerine and methylated spirits of wine; but being readily soluble in muriate of ammonia—both previously crushed,—I use that agent from being cheaper.*

Having dilated the cervix, if rhythmical pain is present without much hæmorrhage, little assistance is required, but should a portion only be expelled, or the hæmorrhage be profuse, it becomes then desirable to empty the uterus by some means, which must necessarily vary, not only in each case, but during the operation. Three methods have been advocated:—Firstly, introducing the left hand into the vagina, and with one or two fingers, empty the uterus; Secondly, by external compression over the hypogastric region, in conjunction with drawing down

* Hydrarg. Perchlor. $\mathfrak{z}$ ss. gr. xvi.; Ammon. Hydrochlor. $\mathfrak{z}$ i; Acid Hydrochlor. Dil. $\mathfrak{z}$ ss; Aq. Destillat. ad. $\mathfrak{z}$ viii. Each drachm contains 11½ grains of mercury, therefore, a tea-spoonful in a pint of water will give a solution of (1 in 1000). The strength being increased or weakened as desired. A tea-spoonful in two quarts being (1 in 4000). Hitherto I have no reason to doubt the antiseptic power of the double salt Ammonio-Mercuric Chloride, but as rain-water cannot always be obtained to dilute the solution, it is thus slightly acidulated to counteract some decomposition and precipitation which would occur with water containing lime; and before irrigation the patient's syringe—when not new—should be cleansed by passing warm water through it as it may contain soapy, or alkaline matter capable of impairing the antiseptic strength.

the cervix by a volsella, so bring the uterus near the vaginal outlet as to enable one or two fingers to be introduced to empty it; Thirdly, without disturbing the normal condition of the parts, or causing any undue strain from stretching the structures, empty the uterus by any of the various instruments specially designed for the purpose. The finger being sentient, is undoubtedly for this reason preferable, and in saying this in its favour, I think I mention the only advantage which it possesses when used alone. Under favourable circumstances it is quite possible for a small left hand to be introduced into the vagina, when the finger would be sufficiently long to explore the uterine cavity during the early months of gestation, but unless the contents were detached, it will be found very difficult, or even impossible to empty the uterus.

The next method requires even more favourable conditions to render such a proceeding justifiable. I say favourable, so far as the operation is concerned, but these necessary conditions are indeed undesirable for the woman, being causes which are capable of inducing the pathological event for which the operation is required; and in ratio to her freedom from the suffering which such an operation would entail, together with the facility with which it can be performed, will be the evidence, more or less, of certain abnormal conditions, such as an undue relaxation of the uterine attachments, with an absence, in a variable degree, of the perineal support; when it is quite possible in a non-nervous person, who can bear a certain amount of pain, to carry out such a proceeding after emptying the bladder; but both in this operation and that previously mentioned, which necessitates the introduction of the hand into the vagina, an anæsthetic is desirable, and must sometimes be absolutely necessary; a requirement not to be ignored in judging of the respective advantages of each method by which the uterus is emptied, since an anæsthetic is not often at hand, nor is it wise for the medical man to incur the responsibility alone of giving anæsthesia to the extent necessary.

The third method is that which I have always adopted of

emptying the uterus by instruments guided by the finger. In practice I soon found that expectancy was dangerous to rely upon, and common sense dictated to me the necessity of adopting bolder measures, which I have since had no reason to regret. I have found instruments of the greatest service in the management of some cases of abortion, without which I could not, in many instances, have possibly succeeded. It is important to empty the uterus, excluding of course the extremely rare circumstance where, in a plural conception, a foetus is expelled, and the other is retained and maturing to term. Incomplete operations, of whatever nature, are commonly bad for the patient, and if the case presented any difficulty requiring much instrumental interference it is better to irrigate the uterine cavity with a suitable antiseptic solution, when, with rare exceptions, the hæmorrhage ceases, especially in the earlier months. Should, however, it continue, the interior of the uterus can be lightly swabbed with a solution of the perchloride of iron, one to three of water, through a speculum, placing against the cervix for a few hours a tampon of lint soaked in glycerine containing some bicarbonate of soda.

In the later months, abortion partakes more of the character of labour at term, and as gestation advances, so does the immunity which seems to exist from certain nerve-phenomena, as convulsions, pass off. It is rarely, however, that such a complication is met with, though convulsions may precede, accompany, or follow delivery. In the treatment, attention must be given to the systemic condition, but I will add that chloroform is of service in nearly all such cases. It is in the removal of the placenta and after its delivery that hæmorrhage—owing commonly to certain systemic conditions—may occasion trouble, being the opposite in the stage of delivery to what occurs during the earlier period of gestation. In illustration of what may be met with, and as showing the treatment which may be required, perhaps only once or twice in a life-time of practice, I will briefly mention a case occurring about ten years ago. A spare anæmic woman, who previously had aborted, and who had much to con-

tend with through her husband being a scapegrace, engaged me for her confinement. When sent for, I was shown still-born twins of about the seventh month of gestation, with one entire and rather large placenta. The nurse had applied a binder, removed the soiled clothes and made her—as she expressed it—very comfortable; but taking nothing for granted and noticing her extremely pale aspect, with a small hæmorrhagic pulse, I examined the abdomen, when finding the uterus tense and of a size nearly that of a six months' gestation, I suspected the cause, and before placing her in a more favourable position, gave some brandy with a dose of ergot, and arranged everything for any emergency which may arise, either to control the hæmorrhage or treat the consequences. With my right hand externally compressing the uterus, I removed with the left a large quantity of clotted blood, when I discovered near the fundus, and posteriorly, an interstitial myoma against which the placenta had been attached, and which seemed to the hand to be the only part of the uterus incapable of contraction. As I continued to feel the blood flowing from the placental site, and the woman was rapidly passing into an alarming condition, I irrigated the uterus with a solution of the perchloride of iron of the strength recommended by Dr. Barnes; this did not stop the hæmorrhage, which continuing to pass like coffee-grounds and water, in desperation I introduced into the uterus a large sponge, soaked in the iron-solution of similar strength, placing another in the vagina, soaked in a weak solution of bicarbonate of soda. After giving a hypodermic injection of ergotine, and per rectum some of Burrough's beef and iron-wine, I was very glad to leave her alive. Early on the ensuing morning I removed both sponges without any return of the hæmorrhage, and under *post partum* management, especially indicated in her case, she made in time an excellent recovery. Her temperature never exceeding 99°F.

Hæmorrhage from placenta previa may occur at any period after implantation, but as the treatment of such cases, apart from that pertaining to abortion, applies to the later months of gestation, the consideration of this subject may appropriately be reserved for a separate communication.

REVIEWS.

LECTURES ON THE SURGICAL DISORDERS OF THE URINARY ORGANS.*

THIS third edition of Mr. Harrison's well-known volume literally dwarfs its predecessor both by its size and by the material contained within it. This volume may now fairly claim to be ranked as a standard text book on Surgical Urinary Disorders. This edition has been entirely re-written and includes besides, two smaller volumes previously published by its author, viz :— "The Prevention of Stricture and of Prostatic obstruction," and "Observations in Lithotomy and Lithotrity, and the early detection of stone in the bladder, with a description of a new method of tapping the bladder." Many new plates have been added in illustration of the text.

The contents, as hitherto, are arranged in the form of lectures, forty-five in number, the subjects of the lecture being broadly indicated at the commencement of each. It would improve the work very much we think if paragraph side headings were inserted throughout the text. Such side headings serve to emphasise leading points and add greatly to the value of a volume as a work for reference.

The first seventeen chapters are almost entirely devoted to matters connected with the urethra, and contain besides, separate lectures on the examination of the urine and on toxic urine in relation to certain surgical operations on the urinary organs. In connection with this last, he accepts the suggestion that "Urinary fevers" are the outcome of absorption by wounded tissues of one or other of the autogenetic poisonous compounds classified together under the names of "ptomaines, leucomaines and

* Lectures on the Surgical Disorders of the Urinary Organs. By Reginald Harrison, F.R.C.S., Surgeon to the Liverpool Royal Infirmary. Third edition, re-written and enlarged. London : J. & A. Churchill, 1887.

extractives." He says that by avoiding the passage of urine over a wounded urethra rigors and fever may be altogether prevented. We think the view taken by Mr. Harrison of the much debated "catheter fever" is extremely feasible, and is much more satisfactory than those explanations which attribute some of the phenomena to occult and incomprehensible nervous influences.

We are glad to see that for properly selected cases he speaks highly of the value of Holt's operation, a method which has somewhat fallen into disuse in the Midlands, and also that he has a high opinion of what is to be done by well executed external perineal urethrotomy. A fact too little recognised is that less contraction occurs after Syme's operation than after any other method of treatment, whether by cutting or not. We read with interest his chapter on "The Treatment of Stricture by External and Internal Urethrotomy Combined," because this method originated with the author, and because we have practised it on several occasions with very satisfactory results. The object of this combined method is to secure free bladder drainage through the perineal wound, and thus minimise the risk of "urinary toxæmia." His practice of incising structures in cases where urinary extravasation has occurred at the same time that the usual incisions are made into the infiltrated perineal and scrotal tissues will appear to some a heroic procedure. We have followed the same course in more than one case, and with the happiest results. We quite agree with the doctrine that all ruptures of the urethra should be treated by external perineal urethrotomy. Every now and then cases of the kind will occur where this operation may be unnecessary, but we have not the slightest doubt that a very large number of urethral ruptures imperatively call for immediate external excision.

A special lecture is introduced on "Urinary Tuberculosis," and we are not surprised to learn that "in tubercular subjects, protracted gonorrhæa and its complications, more frequently than all the other causes put together, determines the deposit to some part of the urinary tract from which it slowly spreads to

other parts of the system." He does not advocate cystotomy in this class of cases as a rule, but relies more upon opium or morphia to relieve the painful symptoms.

The next seven lectures are devoted to matters concerning the prostate, which the author rightly considers should be looked on as a muscle and not as a gland. We are inclined to think that this will be found by the practitioner to be the most valuable part of the volume. Mr. Harrison has always shown great interest in the diseases of this organ, and he has certainly added much to our stock of knowledge by his observations. We would particularly refer to his remarks on "gouty prostatitis," the "function of the prostate," the infrequency of true prostatic abscess, the etiology and nature of prostatic enlargement, and "on prostatectomy."

The succeeding chapters on rupture of the bladder and on points connected with the surgery of the kidneys merely go to support modern advancement on these subjects.

The lectures, thirty-four to forty-one inclusive, are devoted to the consideration of various points connected with stone in the bladder. While accepting to the full the generally adopted views with regard to Bigelow's operation of litholopaxy, he differs from most of our authorities on the respective value and application of median, lateral, and supra-pubic lithotomy. He describes a modification of the former operation and claims for it a wider application than is generally conceded, because it enables him to remove larger stones than is practicable by the ordinary median operation.

The final lectures are devoted to bladder tumour, varicocele, malformations, congenital or otherwise, etc.

We have read Mr. Harrison's publication with the keenest enjoyment. It is self-evident that the work is the outcome of the author's careful observation, of his rich experience, of his originality of conception, of his operative dexterity, and of his warm surgical enthusiasm. The text is extremely well written, without ambiguity, and without sickening and endless reiteration. We commend this third edition most strongly to our readers—alike to the expert and to the novice.

AN INDEX OF SURGERY.*

KEETLEY's index is so well known as to render it unnecessary for a reviewer to criticise this fourth edition at any length. It has become a standard text book to the senior student, the class for whom it was avowedly written. Since its first appearance, when we noticed it fully, it has increased nearly a hundred pages, and it is gratifying to notice that it still maintains its original standard of accuracy. We have known many senior students who have found it of the greatest possible service, more particularly for reference on the eve of examinations, and to the busy practitioner it will often prove exceedingly useful. We congratulate the author on the volume having attained the distinction of a fourth edition in so short a space of time.

TREATMENT OF DISEASE IN CHILDREN.†

THIS recent addition to our handbooks on diseases of children treats mainly, as its title indicates, with therapeutics, but the symptoms, pathology, and diagnosis of each disease are briefly mentioned before its treatment is considered. Undoubtedly the treatment of disease in childhood is a greater difficulty to the practitioner than its diagnosis, and this work is rendered especially valuable by the large number of formulæ given in full. Dr. Money has not limited his remarks on therapeutics to medicinal treatment only, but very properly dwells at length upon hygiene generally, giving excellent advice on clothing, exercise, diet, education, etc. It will perhaps strike the reader that the different disorders are very unequally dealt with. Some of the

* *An Index of Surgery.* By C. B. Keetley, F.R.C.S., Senior Surgeon to the West London Hospital. Fourth Edition. London : Smith, Elder, and Co. 1887.

† *Treatment of Disease in Children*, including the outlines of diagnosis and the chief pathological differences between children and adults. By Angel Money, M.D., M.R.C.P., Assistant Physician to the Hospital for Sick Children, Great Ormond Street, etc. London : H. K. Lewis, 1887.

most important and serious diseases having only a few lines allotted to their description, while other more trivial disorders have a page or more.

It would greatly enhance the value of the work if in a future edition the symptoms, pathology, and diagnosis of each disease were more fully described, the book would then be a complete and very valuable guide. The addition of a therapeutic index would also tend to make the book more useful and popular. There is no doubt that as it stands the work is well up to date and full of valuable hints, the results of the author's practical experience in the wards.

We strongly recommend the student and practitioner to consult this book when in doubt as to the proper treatment of disease in children, and we consider the work a valuable addition to the literature of pediatrics.

ON THE ANIMAL ALKALOIDS, &c.*

THIS monograph of sixty pages is really a short summary of recent researches as to the origin of some diseases by or through the physiological processes going on during life. The work owes its existence to the author's "necessity of finding a subject suitable for a lecture introductory to the course of instruction at the Army Medical School at Netley." We have read the book with pleasure and with profit. In it is embodied in a most palatable form material which to the ordinary professional taste is as a rule nauseous and unassimilable. Chemistry is destined to play an important rôle in the field of clinical medicine, just as it is already doing in that of physiology. That "the poisoning or intoxication of the animal economy with its own products" is an important incident in the history and course of the majority of diseases, is a belief which recent researches tend more and

* On the Animal Alkaloids, the Ptomaines, Leucomaines, and Extractives in their Pathological Relations. By Sir William Aitken, Knt., M.D., F.R.S. London: H. K. Lewis. 1887.

more to confirm. Modern bio-chemical investigation has made it certain that substances such as the ptomaines, leucomaines and animal extractives, under certain conditions are present in the blood of living beings, and also that these substances are usually toxic in their effects and may be autogenetic in their origin. The field of bio-chemical, clinical, and pathological investigation remains almost unbroken ground. It offers rich harvests to scientific workers who will earnestly take the labour in hand. Its resources are great and at present lie deeply hidden, but that they will be brought to the light by human perseverance and thought we have not the slightest doubt. Sir William's lecture is calculated to achieve its author's object "to awaken in young, ardent, ingenious, and impressionable minds a desire to work out various philosophical problems in pathology," which may lead them to entertain broader, or at any rate less narrow views, than those we have been accustomed to entertain as to the origin of some diseases.

SPRAINS, THEIR CONSEQUENCES AND TREATMENT.*

UNDER the somewhat sensational title of "Sprains" the author has dished up for the reader's digestion a literary stew made of anatomical, physiological, pathological and clinical fragments, the flavour of most of which must be familiar to the palate of every average surgeon. We have read carefully through the two hundred and sixty-two pages of letter-press and have failed to find any new idea which seems likely to serve us in the diagnosis or treatment of "sprains" of muscles, joints or tendons. Every book is—or ought to be—written with an object, and what the object of this volume is we fail to recognise. We readily grant that the subject is one of vast importance, and

* Sprains, their Consequences and Treatment, by C. W. Mansell Moullin, M.A., F.R.C.S. London: H. K. Lewis, 1887.

that in connection therewith there are a few facts with which it is essential that every surgeon should be familiar ; but we question whether the uneducated will succeed in gathering from the "chaff" which Dr. Moullin has laid before him the "golden grains" which will serve him in practice. We have protested again and again against the present interminable publication of new books in which authors have nothing original to tell us, more particularly so when special subjects are taken and a volume evolved, two-thirds of which is made up of literary packing and wordy reiteration. We think this volume would have been infinitely more acceptable (for the reason that it would have been more serviceable) to the professional reader if it had been condensed into about one-third of its present dimensions.

Speaking generally upon the whole subject we should agree with the author in most of his statements, more particularly so where he writes of the value of well adjusted pressure in the immediate treatment of the whole class of injuries included under the general term "sprain." Our late townsman, Mr. Sampson Gamgee, understood better than most surgeons, the value of uniform gentle compression as a therapeutic agent, and the simple and efficient manner in which it can be secured by the aid of cotton wadding, pliable bandages, and softened millboard splints has long been familiar to every local student and practitioner. We should take exception to the author's statements that "tennis leg" is *frequently* due to subcutaneous rupture of deep varicose veins ; that Dupuytren's contraction is *often* the result of "sprain ;" that limitation of movement depending upon bands passing between joint surfaces is almost "too simple" to accept as an explanation ; and that a common variety of flat-foot in adults is due to weakness of the Peronei muscles.

The volume is well printed, and except for its prolixity is pleasant to read.

AIDS TO PRACTICAL CHEMISTRY.*

THIS little volume is one of the well known "Student's Aids Series," and deals only with the analysis of simple chemical substances. The "notes" from which the book is elaborated were compiled by the author "when preparing for the primary Examination of the Royal College of Physicians of London." We congratulate Mr. Gordon upon the very excellent little volume he has produced. It is well written, concise and clear; neither too much nor too little, and is just what the average student requires when getting ready for these primary examinations, where "practical chemistry" is demanded. A familiar acquaintance with these "Aids" will enable a student to discover easily and without fail the acid and the base in any simple chemical substance—either solid or in solution—which may be given to him.

ON STERILITY AND IMPOTENCE IN MAN.†

It is too often assumed that men who are capable of performing the sexual act are also capable of pro-creation; and that in unfruitful marriages it is the wife who is at fault. Since more attention has been paid to the subject of sterility and impotence—more particularly now that the microscope furnishes us with a certain means of forming an opinion on the impregnating property of semen—it is becoming recognised that a potent man is not always a fertile one. Procreative power depends entirely upon the quality of the semen, while the term potency implies merely the power of copulating; and this power is often perfect although the semen be altogether devoid of fertilising properties.

* Aids to Practical Chemistry. By J. Hurd Gordon. London: Ballière, Tindall, and Cox. 1887.

† On Sterility and Impotence in Man. By Dr. R. Ultzmann. Translated with Notes and Additions by Arthur Cooper, Surgeon to the Westminster Dispensary. London: H. K. Lewis. 1887.

The book before us is a small octavo volume of 100 pages, and like all other books on special disorders contains a good deal of "packing." The essence of the whole thing could be condensed into one fourth the number of pages. It is only fair to the author to state that there are other works on the subject even larger than this. Ultzmann's work, which occupies less than half the volume, is divided into four chapters. One on Sterility and another on its treatment, and one on Impotence with its corresponding chapter on treatment. The chapter on sterility almost terrifies us with such terms as Aspermism (which ought to be Aspermism we think), Polyspermism, Oligospermism, Azoospermism, and Oligozoospermism. The suggestion, that in stenosis of the vasa deferentia, the testes should be faradised for the purpose of procuring a larger quantity of spermatozoa which, by their added strength, may overcome the obstruction, strikes us as being thoroughly German and extremely funny! The latter half of the work is occupied by notes on Sterility and remarks on Impotence added by the translator. They appear to be a *résumé* of the most recent literature on the subject, with an occasional reference to the translator's own work.

The book is readable and may serve a practitioner in the treatment of cases coming under his care. There is much that is unreliable in our whole knowledge of the subject; but this is neither the fault of the author nor of the translator.

LIGAMENTS: THEIR NATURE AND MORPHOLOGY.*

THOSE who are in the habit of studying the Journal of Anatomy and Physiology will not need to be told of the valuable use which Mr. Sutton has made of his privilege of dissecting the bodies of animals, dead in the Zoological Society's Gardens. Many of the observations in the book under review have already appeared in the pages of the journal just mentioned. Without

* Ligaments: their Nature and Morphology. By John Bland Sutton, F.R.C.S. London: H. K. Lewis. 1887.

definitely committing ourselves to an acceptance of all Mr. Sutton's theories, we may at least, admit frankly, that his observations and deductions are highly original and worthy of careful consideration. Those whose contention it is that the subject of Human Anatomy is a worked out mine would do well to read this book, and find therein complete confutation of their views. It is a good instance of that new and higher anatomy which is being developed by the union of Comparative Anatomy and Embryology. Like all Mr. Sutton's work this little book is eminently suggestive, and those in search of ideas, will do well to peruse it.

VACCINIA AND VARIOLA.*

THIS handbook appears to be the result of much patient and prolonged research. The bacteric forms of the contagium of vaccinia and variola have not hitherto received much attention in this country at the hands of pathologists who devote themselves to this kind of enquiry. When we take into account the many problems connected with the inoculation of variola and vaccination, we must admit that there is ample scope for experimental investigation into the nature of the virus concerned in these processes. The recent improved methods of histological investigation have contributed much to our knowledge of the life history of micro-organisms, and Dr. Buist has made full use of the modern resources of bacteriological research by pure cultivations and special experiments conducted for the purposes of his enquiry. Clear vaccine and variolus lymph, according to the author, contain not micrococci, but the spores of micrococci, and he believes that the difference of potency often observed in vaccine matter is accounted for by variations in the developmental conditions of the spores in different specimens. He has

* *Vaccinia and Variola, a Study of their Life History.* By John B. Buist, M.D., F.R.S.E., F.R.C.P. Ed., Physician to the Western Dispensary, and Teacher of Vaccination for the Local Government Board. London: J. and A. Churchill.

shown that, whereas clear vaccine lymph contains minute spherical spore-like micrococci, opaque lymph exhibits the micrococci in groups and chains; the opacity being due to the spores being in a condition which favours their development, a process which may even be carried on outside the body. The inoculation of yeast, an experiment which the author performed upon several monkeys, seemed to afford some protective power against variolation and vaccination. Yeast inoculation can be safely carried out in the human subject, as the author performed the operation upon himself.

From his experiments he argues that immunity to the vaccine and variolus poisons is produced by a gradual fermentation of the blood, the material necessary for the subsistence of the virus being used up in the process; or secondly, another poison inimical to the first is generated; or thirdly, a transformation of the blood and tissue cells is brought about by the action of the virus, a metabolism by which the transformed cells acquire the power of the original virus. The analogy of malting and the alcoholic fermentation is cited to support the above theories, which are all more or less speculative. A complete vital fluid such as the blood can hardly be compared with the saccharine solution of the maltster. None of the theories are new, and further investigation is needed before any can be accepted as satisfactory.

Dr. Buist thinks with Chauveau that attenuation is best explained by the virus being in a condition of spore production. This view is extremely probable, although it has not received the support of the eminent authority Pasteur, who in the case of anthrax has insisted that the mitigation by cultivation depends on the temperature at which the organism grows and on the action of oxygen.

The work is full of interest for bacteriologists and public vaccinators. Practitioners engaged in the practice of vaccination will here find a handy guide to the present state of knowledge upon an important subject.

RETROSPECT.

OPHTHALMOLOGY.

BY E. WOOD WHITE, B.A., M.B., B.CH.

Passive Motion in the treatment of Paralysis of the Ocular Muscles. — In the August number of the Medical Record Dr. C. Bull contributes a paper with this title. He states that the treatment of such paralysis is generally unsatisfactory, and that the longer the paralysis has existed the more doubtful becomes the chance of recovery. Many cases of syphilitic paralysis improve up to a certain point, and then remain at a standstill, leaving the most annoying diplopia. Cases of rheumatic paralysis are often more obstinate still. Galvanism is most unsatisfactory in its results owing to the difficulty of applying it directly to the muscles. In 1887 Professor Michel suggested an orthopædic method of treatment which was novel in conception and offered theoretically certain advantages. "The paralysed muscle is to be seized at its line of sclerotic insertion with a pair of ordinary fixation forceps, and the eyeball then to be pulled backward and forward in the direction of the line of contraction of the affected muscle, as far as is possible towards or even beyond the limit of contraction, and then back in the reverse direction, as far as the limit of extreme relaxation, and then to-and-fro movements are to be continued for about two minutes." Michel recommended a daily performance of the manoeuvre, and called attention to the considerable resistance at first offered by the antagonistic muscle. The author gives the result of his experience in twenty-one cases. The paralysis was completely cured in eight cases, partially relieved in six, while in seven the treatment proved valueless. Although the results are not brilliant, Dr. Bull considers them sufficiently favourable to make it advisable to continue our efforts in this direction, as a more extended experience of passive motion in

combination with the careful application of electricity may give us better results in the treatment of this troublesome disease. The pain from the operation is in many cases severe and not completely relieved by cocaine, and the after irritation is often considerable.

On Retrobulbar Incision of the Optic Nerve in cases of swollen disc.—Mr. Brudenell Carter (Brain, July, 1887).—The author opens his interesting paper by reviewing the literature of the subject, referring especially to a paper by Dr. De Wecker, read at the Ophthalmic Congress in 1872. He does not consider that all cases of swelling of the intra-ocular termination of the optic nerve as true optic neuritis. Often there is considerable swelling of the disc and retina, but only slight loss of tissue. Mr. Carter looks on such swelling as passive or dropsical, and due to some pressure on the retinal vein after it pierces the sheath of the nerve. The vision of such patients often rapidly deteriorates after having remained for some time slightly if at all affected. Mr. Carter thinks that this is usually caused either by a rapid increase of fluid within the dural sheath causing compression of the nerve or to slow strangulation of the capillaries and fibres by contraction of an interstitial effusion of a plastic character. When this occurs the author recommends incision of the nerve sheath. The operation is performed from the outer side. The external rectus muscle is divided, sutures being previously inserted on each side of the line of incision. The capsule of Tenon is carefully separated from the globe, and the sheath of the nerve previously fixed by a fine hook divided in the axis of the nerve for about one quarter of an inch. The notes of one case where this operation was performed show that a considerable improvement took place in the vision of the patient, and in the relief of pain and other symptoms.

On Co-excitation in the regions of homonymous visual fields.—Dr. Schiell, Arch. Ophth., vol. xvi. In this paper several fields of vision are given, taken from neurasthenic and hysterical patients at different times, and under different degrees of fatigue. The results of the experiments showed that the visual field of the

fatigued eye contracted in arithmetical not geometrical progression, and that the field of the eye not under examination contracted in a similar manner to the one directly affected, which proved that the fatigue took place not in the retina but in the occipital lobes where the visual centres are located. In the cortex of the latter the fatigue of the crossed fascicle is transmitted to the lateral fascicle and *vice versa*. The tendency to fatigue of the centres heretofore designated as anæsthesia or hyperæsthesia of the retina may occur in purely functional conditions (hysteria, hypochondria, neurasthenia), and in organic regions of the nervous system. In transient psychical alterations the limitation of the periphery of a section of the visual field has no influence on the periphery of an adjacent sector or any other part of the same field. The fatigue of the visual centre produced by the examination is transmitted in a definite manner to the fibres for the other retina that govern homonymous parts in the visual field.

The Etiology and treatment of Converging Strabismus was the principal subject for consideration at the Annual Meeting of the British Medical Association, held in Dublin. The discussion was opened by Mr. Snell, of Sheffield, who traversed all the various theories on the subject. Notes of his own cases showed that the average amount of hypermetropia (which is almost invariably associated with strabismus) is about 4.25D., it being less frequent in lower and higher degrees. The left was found to be more frequently the squinting eye. It was noted that after the squint had been cured the vision in the deviating eye improved. Mr. Snell considered that most of Donder's theory as to the causation of strabismus still holds good, namely: the association of hypermetropia and the interdependence of convergence and accommodation, but he admitted that there are other supplemental causes. Early treatment by spectacles was strongly advocated, and the use of weak mydriatics for some time after they had been ordered. When patients are too young for glasses all accommodative work is interdicted, and the squinting exercised alone each day. When these measures fail, Mr. Snell

resorts to operative treatment, and he finds it more convenient to divide the tendon from above rather than below. Complete correction by operation is not aimed at, the constant wearing of spectacles being trusted to further remedy the defect. Dr. Mules, of Manchester, considered that sufficiently developed ciliary muscles could without excessive effort, at an early age, focus parallel even divergent rays on the receptive layers of a hyperopic eye. But that insufficiently developed ciliary muscles in such eyes require the stimulus of accommodation to attain accurate definition of distant objects, in other words, that under accommodation effort involves convergence. He thought that the excessive call on accommodation over develops the ciliary muscle, and that this hypertrophy is really nature's aim for the cure of the defect and ought to be encouraged. He accordingly thinks that atropine should not be used, nor the hypermetropia completely corrected by glasses, and that these latter should be gradually discontinued as the squint improves. He does not believe in permanent amblyopia from suppression; but that monocular amblyopia is a common cause in the production of accommodative insufficiency.

On Binocular Vision after Strabismus Operations.—A most instructive paper was also read by Professor Landholt, of Paris. The author pointed out that in cases of inveterate strabismus with considerable difference of refraction between the two eyes, or amblyopia, even when the eyes are brought back to their normal direction binocular vision is often not attained. To meet such cases he has devised a stereoscopic box which is furnished for each eye with a spherical lens, combined, if necessary, with a cylinder which allows the patient to see objects at the bottom of the box without any effort of accommodation. The object at which the patient looks is to consist at first of two vertical lines, one in the upper part of the field on one eye, the other in the lower half of the fields of the other eye. The patient must then bring them nearer till they seem to form one line. Later on diagrams on stereoscopic slides.

These orthoptic exercises are continued until the patient can correctly pass through Hering's test, which consists in making the patient look through a tube directed towards a vertical point placed at a distance of some feet from his eyes, and then deciding whether small balls are dropped before or behind the point. It is manifest that when binocular vision is secured the cures obtained are the most perfect and durable.

SURGERY.

BY WILLIAM F. HASLAM, F.R.C.S.

Hallux Rigidus.—In the Edinburgh Medical Journal for November is an abstract of a paper by Mr. J.M. Cotterill on the "Condition of Stiff Great Toe in Adolescents." The symptoms of this condition are more or less inability to dorsiflex the toe, accompanied by pain, in the early stage felt on the dorsal aspect, and later in the course of the disease in the plantar region. Mr. Cotterill considers—1. *Hallux rigidus* proper is due to the invariable combination of flat-foot and boot pressure. 2. That while no amount of flat-foot alone will cause it, a slight amount of flat-foot in combination with boot confinement is sufficient to bring it about. 3. That it exists, to a *certain extent*, in almost all cases of flat-foot occurring in persons wearing ordinary European boots. 4. Flat-foot occurring in barefooted nations, or in those who wear sabots or other such boots as provide for ample dorsiflexion of the great toe, does not cause it. 5. That the connexion between it and flat-foot has been frequently denied or overlooked owing to the imperfect means of testing flat-foot. 6. That it is frequently one of the earliest manifestations of flat-foot in booted nations. 7. That while it is commonest in young boys it occurs frequently in girls. 8. That in the early stages it may be cured by attention to the flat-foot and by giving room for dorsiflexion of the hallux.

In the later stages excision of the proximal end of the first phalanx is probably the only means of cure, though palliative treatment by fixation of the joint may give relief to pain in walking.

Re-united Intestines after Suture.—Mr. Stanmore Bishop has an interesting paper on "The Microscopic Appearance of Section of Re-united Intestine after Suture," in the Medical Chronicle for October. He finds as the result of experiment that union of divided intestine occurs through three distinct stages, which pass almost imperceptibly into one-another, but always occupy the same relative positions, and, if the subject lives long enough, appear to be constant. The first is the stage of peritoneal union; it is rapid, often being complete in forty-eight hours. Mr. Bishop finds that this union between peritoneal surfaces is—1. Of connective tissue. 2 That it springs from the serous coat alone. 3. That the muscular as well as the mucous coats take no part in the primary or peritoneal stage of union. The second stage is one of contraction of the fibrous tissue thrown out between the serous surfaces, the mucous membrane stopping short at the edges of the wound. The third stage is called cellulo-fibrous, and in this the mucous membrane is reproduced, the connective tissue which originally bound together the peritoneal coats has disappeared, and finally the cicatrix becomes almost imperceptible.

Intestinal Obstruction.—The paper by Mr. Frederick Treves on "The Diagnosis and Treatment of Chronic Intestinal Obstruction," in the Lancet of October 29, is one of much practical interest. For diagnostic purposes he describes four classes, arranged in order of frequency as follows:—(1) Fæcal accumulation. (2) Stenosis of the colon (due usually to stricture, and preferably to malignant stricture). (3) Stenosis of the small intestines (due usually to conditions other than stricture). (4) Chronic intussusception.

1. *Fæcal accumulation.*—The subjects are mostly adults, and generally females. It is often associated with hysteria, melancholia, and hypochondriasis. The cases most difficult to

diagnose are those in which some temporary mechanical occlusion (as by kinking) is effected by the fæcal mass, and acute symptoms supervene upon chronic. The constipation so characteristic of this condition may reach an extreme degree before attacks of colic or sickness occur. One symptom of importance is the extreme foulness of the breath. It is rare to see coils of hypertrophied bowel through the parietes. Pain is paroxysmal in character, and is less severe than in stenosis. Vomiting occurs late, is very scanty, infrequent, and not feculant, unless there has been absolute obstruction for some time. Enemata and the long tube are considered absolutely useless for diagnostic purposes.

2. *Stenosis of the Colon*.—In the majority of cases produced by stricture—cancerous in nearly 60 per cent. Usually situated at the sigmoid flexure, next in order of frequency in the descending colon, or splenic flexure; then in the transverse colon, or hepatic flexure, and lastly in the ascending colon, or cæcum. The general symptoms are very similar to those of stenosis of the small intestine. In making a differential diagnosis the following points are to be noted:—The pain is intermittent and colicky in character, and is on the whole less severe. Vomiting is later in its appearance and is less marked. It never becomes stercoraceous except after many days of absolute constipation. The symptoms are but little affected by food. There may be diarrhoea alternating with constipation. Aperients often give relief in cases of stricture of the small intestine, but are apt to aggravate the symptoms when the colon is involved. Meteorism is usually pronounced.

3. *Stenosis of the Small Intestine*.—This is generally bent or narrowed by peritoneal adhesions; sometimes many coils are matted together. Actual stricture of the small intestine, often met with about early middle life, is rare, as is also primary malignant disease. History is of considerable importance, especially as to previous attacks of peritonitis, abdominal operations, syphilis, strangulated hernia, injury to the abdomen, mesenteric disease, tuberculosis, or dysentery. The symptoms

vary considerably, the onset is usually gradual, and the progress apt to be marked more or less by acute attacks. Owing to fluidity of contents the bowel may become greatly narrowed before very pronounced symptoms are produced. The stricture is, however, liable to be abruptly closed by a valvular fold of mucous membrane, a mass of undigested food, or by kinking. Pain is intermittent, and is often brought on by food. Tenesmus is absent, the abdominal parietes are flaccid unless peritonitis is present, and in uncomplicated cases there is no local tenderness. Meteorism is absent, except during an acute attack. Movements of the distended coils of hypertrophied bowels are visible through the abdominal parietes.

4. *Chronic Intussusception*.—The most difficult of all to diagnose; gives rise to most ambiguous or varied symptoms. The ileo-cæcal is the most common variety, the ileo-colic the least. The important points in the diagnosis, are:—1. Age: generally children and young adults. 2. Mode of onset: while the symptoms may commence with an acute attack, in most cases the onset of the disease is insidious. 3. The invagination tumour has been felt through the abdominal parietes in about 50 per cent. 4. Blood in the motions has been recorded in about half.

Renal Surgery.—Dr. Edward O. Otis on “Injuries of and Operations upon the Kidney.” (Boston Medical and Surgical Journal, October 13, 1887).—Speaking of a severe sub-parietal injury of the kidney accompanied by much hæmorrhage, the author asks, “what is to be done?” The first thing is obviously to arrest hæmorrhage, and for this, perfect and prolonged rest is advocated, the best external application being an ice bag. In the internal administration of astringents he has no faith. Clots in the bladder may be broken up with a lithotrite, or by the plan suggested by Dr. F. N. Otis, by dissolving them by injecting a pepsine solution. Cystotomy may be necessary. If in spite of treatment the bleeding continues the vertical lumbar incision should be first done, and only on then failing to arrest the hæmorrhage, or on finding the peritoneum opened and

containing clots, should a ventral one be resorted to. A previous lumbar incision is said to be in no way prejudicial to a later abdominal section. Direct surgical interference is demanded as soon as the bleeding is jeopardizing life. At a later stage an operation may be necessary for suppuration, extravasation, or pyonephrosis.

Dupuytren's Contraction.—In the London Medical Record for October 15, 1887, is an abstract of a paper by Professor Kocher of Bern. The author does not consider that simple division of the contractile bands is enough to effect a radical cure; these bands, together with their prolongations, should be completely removed. In cases where the skin is very thin and adherent to the fascia it also should be excised. By simple division the thickened fascia is left behind, and cutaneous nerves are frequently divided. By complete removal this latter evil can be avoided, and a new and yielding connective tissue formed which does not show any tendency to contract. The primary contraction is the result of chronic plastic inflammation, set up by mechanical irritation.

Œsophagotomy.—In the same Journal is an abstract of a paper by Dr. George Fischer, of Hanover, on "Œsophagotomy." Of eighty cases sixty-two had a successful termination, the shortest interval between the accident and the operation being half an hour, the longest twelve years. He contends that œsophagotomy is an operation of comparatively little danger. Fistula never result, stricture rarely. The most frequent cause of death is ulceration of the mucous membrane, leading to perforation, mediastinal abscess, pleurisy, and inflammation and gangrene of the lung. Exhaustion is also a frequent cause of death; this is caused by the prolonged fast, in consequence of the difficulty of swallowing, and delay in operating. He thinks that in a case of impacted foreign body in the œsophagus the following rules should be observed as to its removal:—1. A piece of soft food, or a hard smooth body should be guided into the stomach by means of a gum elastic œsophageal bougie—not the "sponge mop." 2. A large, pointed, angular body should be

removed by the mouth by means of the "coin catcher." 3. A small, hard, not very angular or pointed body may be displaced either upwards or downwards, but it is better to attempt extraction by the mouth. If an impacted foreign body cannot be removed, the question arises as to the time of performing œsophagotomy; the surgeon should then bear in mind the following facts:—

1. Inflammatory swelling of the neck, and infiltration of the tissues around the gullet may occur two or three days after impaction; ulceration, perforation, and gangrene of the walls of the gullet and also of abscess in the mediastinum have been seen on the fourth day.
2. Impaction may give rise to swelling of the thyroid gland, a condition which would render the operation very difficult.
3. The resulting dysphagia weakens the patient day by day, and after a week's fast he may be reduced to a state of extreme exhaustion.
4. The mortality from œsophagotomy is 12 per cent. less when performed within the first two days than between the third and fifth.

Dr. Fischer thinks that a recently swallowed foreign body should be removed by œsophagotomy, if bloodless methods fail by the end of the second day.

Intussusception, Natural Cure.—A case of intussusception of twenty-four days' duration, in a man aged 64 years, is reported by Mr. Joseph Bell, in the *Edinburgh Medical Review* for September. The treatment was to stop all food by the mouth, and to administer rectal injections. Ice was given to suck in small quantities, and $\frac{1}{3}$ grain of morphia subcutaneously. The morphia was repeated twice in twenty-four hours, and the injection of beef tea and eggs was given at twelve hours' and eventually at eight hours' interval. After the seventh day food in small quantities was allowed by the mouth. Flatus passed on the tenth or eleventh day, and fæces on the fourteenth. On July 27th he passed a large piece of dead ileum, about nine inches in length. On the 28th he died exhausted. No *post mortem* examination was allowed.

Colotomy, Lumbar or Anterior?—At a discussion before the Surgical Section of the Royal Academy of Medicine in Ireland

(The Dublin Journal of Medical Science for November), Dr. Bell advocated laparo-colotomy for the following reasons:—1. It permits a thorough exploration of the abdominal cavity, which may allow of complete removal of the disease, and ensures that the opening is made above the seat of obstruction. 2. The large intestine is found with ease and certainty. 3. A complete operation for the closure of the lower lumen can be much more readily and completely carried out. 4. A shorter distance of intestine intervenes between the opening and the seat of the disease. The abdominal walls being thinner in front, the extent of wound surface is less, and the fine skin of the anterior abdominal wall permits a much more accurate co-aptation of the skin to the mucous membrane. 5. The position of the wound is more convenient for the patient. The incision recommended is in the left linea semilunaris, taking care not to go below a line joining the umbilicus and the middle of Poupart's ligament, so as to avoid injuring the deep epigastric artery. The sole contra-indication to the performance of laparo-colotomy is extensive meteorism, which interferes with the performance of the intra-peritoneal operation.

Innominate Aneurism treated by ligature of the right Carotid and Subclavian arteries.—In the Medical Record for October 15th, Dr. Herman Mynter, of Buffalo General Hospital, reports the following case:—The patient, a married woman, aged 54, had complained of increasing dyspnœa, difficulty of swallowing, and palpitation of the heart for six months; healthy family; no history of syphilis; several attacks of acute rheumatism. In the interclavicular space, extending upwards behind the sternomastoid, was a pulsating tumour as large as a walnut, which expanded synchronously with the pulse. It was rather soft, and by pressure could be made smaller. Heart enlarged, apex outside the nipple line. As her symptoms were all increasing, the Carotid and Subclavian arteries were ligatured under strict antiseptic precautions on May 26th. The aneurism became smaller, harder, and the pulsation considerably decreased. On

June 15th she was discharged, and on August 31st she was able to do light house work, and could walk half a mile without difficulty. There was then no dysphagia, and hardly any dyspnoea.

THERAPEUTICS.

BY T. STACEY WILSON B.SC., M.B.

Acetanilide or Antifebrin.—This drug has been brought prominently forward of late and seems likely to prove a valuable addition to our pharmacopœia although, on more intimate acquaintance with its action, it seems less likely to be ranked as an antipyretic than as an anodyne. Its physiological action has been investigated by Dr. Herczel of Heidelberg (*Centralblatt für Med. Wissenschaft*) and others, and their observations show that it has a well marked effect upon the nervous system; poisonous doses producing general analgesia with abolition of reflexes, and very irregular respiration in addition to lowering the body temperature. The temperature appears to be diminished in consequence of a toxic action upon the hæmoglobin of the blood, preventing its oxidation, and, according to Lepine and Aubert, causing the appearance of the characteristic ray of methæmoglobin in the spectrum. It also appears to diminish the absolute amount of hæmoglobin in the blood. This fact, together with the clinical experience of its liability to produce cyanosis, and the uncertainty of its action as an antipyretic, leads Prof. Dujardin-Beaumetz, in summarising its action (*Therap. Gazette*), to state that it ought to be discarded as an antipyretic in favour of antipyrin—a statement which we think rather too sweeping, considering the marked benefit many observers have seen following its use, and the fact that it certainly seems in some cases to succeed in reducing temperature where other remedies have failed. Where there is absence of fever, on the

other hand, he thinks it a perfectly safe drug, and speaks of it as a "precious acquisition" as a "nervine medicament," for by its means he has successfully combatted many forms of pain, more especially that type of neuralgia which is associated with changes in nerve tissue, such, for example, as the neuralgia of neuritis, and the lightning pains of locomotor ataxy. It is also useful in hemicrania, &c. Its action unfortunately does not seem to be quite certain, and in some cases toleration is established in the course of a few weeks. The dose recommended is from 5 to 6 grains hourly for a woman, or from 6 to 8 for a man with a daily maximum of 30 to 40 grains, although less should be given in anæmic subjects, and its administration discontinued from time to time in order to prevent its deleterious influence on the blood from becoming established.

Antipyrin.—As is usually the case with new drugs, Antipyrin is being brought forward as a means of curing a great variety of ailments. Hay asthma and sea sickness are amongst its most recent triumphs, but whether its action here will prove any more certain than the multitude of drugs which are used already, with varying success in these two conditions, time alone will shew. Its value as an anodyne seems to be confirmed by numerous observers, but cases are reported where irritation or even sloughing has followed its subcutaneous injection. This, although not very frequent, seems due to the use of a too concentrated solution and can be avoided by using a 50% solution in water.

"Stenocarpine."—Further investigations into the composition of this so-called new drug have proved that it consists merely of a mixture of cocaine with one or more of the alkaloids of the atropine group, and that the solution was of greater concentration than it purported to be. Further that no part of the tree from which it is said to be derived, and of which a detailed description lately appeared in the New York Medical Record, is found to contain any alkaloid bearing properties such as those attributed to "Stenocarpine." Stenocarpine, therefore,

must be regarded as a pharmaceutical fraud and treated accordingly,

Oxygen Enemata.—There is an interesting and suggestive article in the *Therapeutic Gazette* on this subject by Dr. Kellogg (Michigan, U.S.), in which, although he does not lay claim to novelty for his principle of treatment, Dr. Kellogg appears to be the first who has drawn attention to the therapeutic usefulness of the absorption of oxygen by the large intestine. It certainly seems to be a rational mode of treatment, and one which must have a marked and beneficial effect upon the processes of metabolism going on in the abdominal viscera when rightly employed. Experiments on animals as to the facility of absorption of oxygen by the bowel made by the author and others show that within a minute, or less, after injection of gas into the rectum the blood in the mesenteric veins assumes a bright almost arterial hue, and returns to the usual venous colour as soon as the oxygen is withdrawn. The cases where he expects most benefit are those where the liver is sluggish and its powers of oxidizing effete products defective; and he mentions a case of obstinate lithiasis which had persisted for weeks in spite of treatment by drugs and diet, the latter being of a non-nitrogenous character, and supplemented by the patient drinking three to five pints of hot water daily. In this case the administration of two litres (*i.e.*, 3½ pints) of oxygen daily, sufficed in three days completely to remove the excess of uric acid from the urine, and the continuation of the treatment was followed by a steady improvement in the health of the patient, no other change being made in the diet or treatment. He also claims a beneficial result for this treatment in cases where digestion suffers from mal-aeration of the blood, and mentions having found "surprising benefit" from it in a case of phthisis. With regard to the way in which this treatment is borne by patients, he states that he has never found any serious discomfort result, and that the gas is retained, although when given in large quantities it is not quite so readily tolerated as the carbon

dioxide and sulphuretted hydrogen mixture used in the Burgeon treatment of phthisis.

Benzol in Whooping Cough.—Attention is drawn to this subject by Drs. Lynch and Lowe in the Brit. Med. Journal, and the latter recommends it in doses of from 2 to 5 minims made up with glycerine, ol. menth. pip. and syr. mori as the best means of disguising its pungent taste.

Nasal Insufflation with Boracic Acid, as introduced by Dr. T. Guerder for whooping cough seems also to have proved successful in the hands of Dr. Holloway.

Strophanthus and its preparations.—The rapidity with which this drug has come into general use affords an interesting illustration of the readiness with which commercial enterprise overcomes obstacles in the way of supplying such new drugs as Medical Science may require. Dr. Livingstone was among the first to describe the plant and its uses, but it was many years before Prof. Fraser was able to obtain a sufficient supply of the drug to enable him to complete his elaborate experiments. Upon his report being made public such a demand for the drug arose, and the difficulty of obtaining it was so great, that even where the tincture was retailed at the price of 2/- per half ounce bottle—so we are informed by Messrs. Burroughs and Wellcome—there was a great loss to the chemist on the transaction. It will interest the Medical Profession to know that now tincture of strophanthus is about as inexpensive as any tincture in the Pharmacopœia. The above firm are supplying tabloids containing 2 m. of the tincture at the ordinary prices of pills and powders.

Local News.

QUEEN'S COLLEGE.—At a recent meeting of the Council Mr. Lawson Tait was elected to the newly appointed chair of Professor of Gynæcology, and Mr. T. H. Bartleet to the newly made office of Lecturer on Operative Surgery.

New Books, etc., Received.

BOOKS.

- The Saliva as a Test for Functional Disorders of the Liver. By SAMUEL FENWICK, M.D. London: J. and A. Churchill. 1887.
 A Letter to the Rt. Hon Lord Aberdare. By CHARLES WEST, M.D.
 Nasal Polypus with Neuralgia, Hay Fever, and Asthma in relation to Ethmoiditis. By EDWARD WOAKES, M.D. Lond. With Illustrations. London: H. K. Lewis. 1887.
 Are Epidemics Contagious? By JOHN PARKIN, M.D., F.R.C.S. Popular Edition. London: Sampson Low, Marston, Searle and Rivington. 1887.
 The Volcanic Origin of Epidemics. By JOHN PARKIN, M.D., F.R.C.S. Popular Edition. London: Sampson Low, Marston, Searle and Rivington. 1887.
 Transactions of the Association of American Physicians.

JOURNALS.

- The Atlanta Medical and Surgical Journal.—The New York Medical Abstract.—The Medical Record.—The Boston Medical and Surgical Journal.—The American Practitioner and News.—The Medical Register.—The International Journal of the Medical Sciences.—The Western Medical Reporter.—The Archives of Pediatrics.—The Therapeutic Gazette.—The Boston Medical and Surgical Journal.—The Medical Herald.—The Medical Age.
 Journal de Médecine.—Centralblatt für Kinderheilkunde.—Le Progrès Médical.—The Sei-i-kwai Medical Journal.—Journal de Médecine et de Chirurgie Pratiques.—Revue de Médecine.—Archives Roumaines de Médecine et de Chirurgie.
 Edinburgh Medical Journal.—The Provincial Medical Journal.—Glasgow Medical Journal.—Journal of Laryngology.—The Practitioner.—The London Medical Record.—The Journal of the British Dental Association.—The Annals of Surgery.—The Lancet.

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